Standardization

News Magazine of the American Standards Association, Incorporated

Roger E. Gay — ASA's New President

December 1951

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Incorporated

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Amer Iron & Steel Inst
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Associated Factory Mutual Fire Ins Cos
Nat Bd of Fire Underwriters
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Heating, Piping and Air Conditioning Contractors Nat Assn
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Mfrs Stdzn Soc of the Valve and Fittings Industry
Metal Cutting Tool Inst
Motion Picture Research Council, Inc
Nat Aircraft Stds Com
Nat Assn of Hosiery Mfrs
Nat Assn of Mutual Casualty Cos
Nat Assn of Purchasing Agents
Nat Coal Assn
Nat Elec Mfrs Assn
Nat Lumber Mfrs Assn
Nat Machine Tool Builders' Assn
Nat Office Management Assn
Nat Retail Dry Goods Assn
Nat Safety Council
Outdoor Advertising Assn of Amer, Inc
Oxychloride Cement Assn
Photographic Mfrs Group:
Ansco Div of Gen Aniline & Film Corp
Eastman Kodak Co
Portland Cement Assn
Radio-Television Mfrs Assn
Refrigeration Equipment Mfrs Assn
Scientific Apparatus Makers Assn
Soc of Automotive Engrs, Inc
Soc of Motion Picture and Television Engrs
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Synthetic Organic Chem Mfrs Assn of the U. S.
Telephone Group:
Bell Tel System
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U. S. Machine, Cap, Wood and Tapping Screw Bureaus:
Machine Screw Nut Bur
Socket Screw Products Bur
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Spring Washer Inst
Textile Color Card Assn of the U.S., Inc
Textile Distributors Inst, Inc
Veneer Assn

Company Members—More than 2000 companies hold membership either directly or by group arrangement through their respective trade associations.

Marginal Notes

1924 Comment—Herbert Hoover

Following presentation of the Howard Coonley Medal to The Honorable Herbert Hoover and of the Standards Medal to Dr P. G. Agnew at the National Standardization Conference luncheon October 24, President T. D. Jolly read a letter. The letter is dated April 23, 1924. It offers a striking commentary on the reasons why both Mr Hoover and Dr Agnew were selected as the recipients of these awards.

The letter was addressed to Albert W. Whitney, chairman of the American Engineering Standards Committee, predecessor to the present American Standards Association. Dr Agnew in 1924 was head of the Committee's staff. The letter said:

"I believe that everyone in touch with industry realizes the tremendous service being performed by the American Engineering Standards Committee, which is a service to industry itself and therefore should be supported by the industries. I trust that it will be so recognized."

The letterhead read "Department of Commerce, Washington, D. C." The letter was signed, "Herbert Hoover."

Dr P. G. Agnew (see picture)

Mrs Agnew smiles approval as Willis S. MacLeod, Standards Division, General Services Administration, congratulates Dr P. G. Agnew. Dr Agnew was recipient of the first Standards Medal award, presented by the American Standards Associa-

tion for "leadership in the development and application of voluntary standards." Making the presentation at the Conference luncheon, Roger Gay, chairman of ASA's Executive Committee, said, "The first person to receive this medal is a gentleman who has given a lifetime of service and leadership in the cause of standardization. Of his 70 years, 45 have been spent in standards

work. Since 1947, Dr Agnew has served, and served well, as full-time consultant to the American Standards Association, but time catches up eventually with all of us, and this year he retires from active standards work.

"Dr Agnew will retire, but he is still an outstanding authority on standards in the United States. As long as he lives, he will always be known to his friends and associates as 'Mr. Standards.'"

Our Front Cover

Roger E. Gay—ASA's President for 1952.

President of The Bristol Brass Corporation of Bristol, Connecticut, and director of a number of other nationally known companies, Mr Gay finds time to devote to national problems as well. (Page 382).

Opinions expressed by authors in STANDARDIZATION *are not necessarily those of the American Standards Association.*

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Standardization is dynamic, not static. It means not to stand still, but to move forward together.

In This Issue

"Strengthening America Through Standards" was the theme of the Second National Standardization Conference, held at The Waldorf-Astoria, New York, October 22-24. Sessions on military ordnance, purchasing, materials conservation, and the Company Member Conference offered opportunities for discussion of ways in which standardized techniques can be put to work for greater economy and efficiency. In addition, sessions of ASA's Board of Directors, Standards Council, and Conference of Executives of Organization Members brought representatives of associations and technical societies from all over the country to consider how to further the activities of the Association.

High spots in the meetings were presentation of awards and scrolls in recognition of outstanding services in standardization.

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All photographs in this issue by Gene Dauber

ASA

Reg. U. S. Pat. Off.

Ruth E. Mason, Editor Nina Asto, Production Editor

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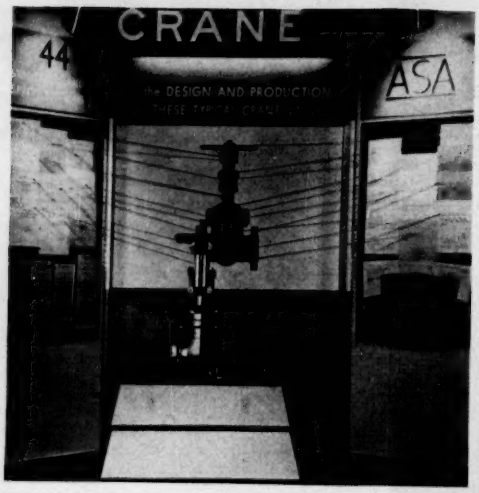
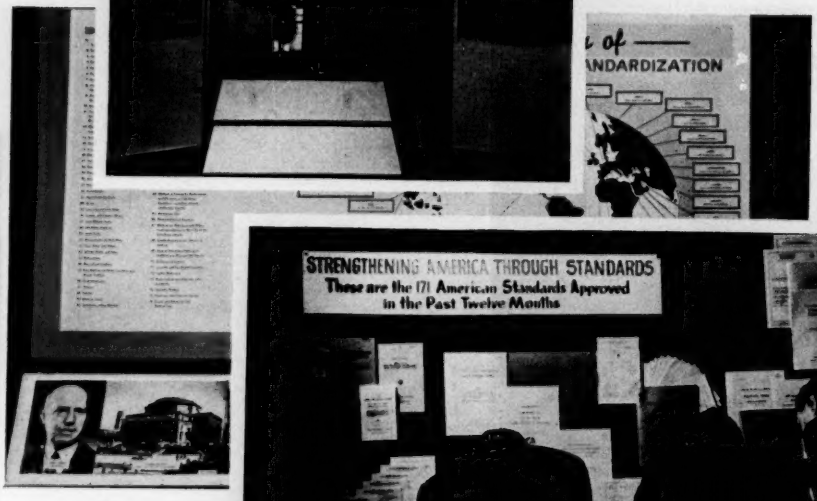
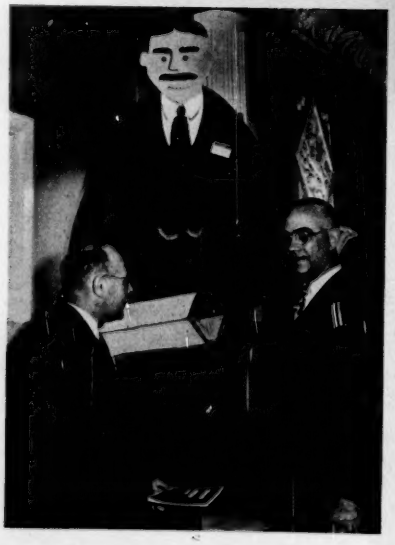


Left: Exhibits showed how standards affect a company's product. Here, Crane Company (plumbing) points to 44 standards that enter into the design and production of a typical Crane valve. For similar exhibit by Ansco (photography) see page 391



Above: New American Standards, exhibited on this board and in books on table, received close attention

In the background above (in color) is the exhibit calling attention to the second general assembly of the International Organization for Standardization to be held in New York in June 1952



Left: Two strong supporters of standardization meet a newcomer in the field—Purchasing's Vincent Goubeau (RCA Victor) and George Renard (National Association of Purchasing Agents) with the "post hole industry's" Digby Postlethwaite

The Honorable Herbert Hoover speaking at Conference luncheon. (Left to right) Howard Coonley; R. E. Wilson; Mr Hoover; T. D. Jolly; P. G. Agnew; H. S. Osborne; R. E. Gay; G. F. Hussey, Jr; E. H. Eacker; Miss Ardenia Chapman

The Crusade for Standards

Acceptance of Howard Coonley Medal
by The Honorable

Herbert Hoover

National Standardization Conference Luncheon,
The Waldorf-Astoria, New York, October 24

A few days ago your committee invited me to accept this great honor. And I prize it, especially as it comes from my fellow engineers.

At once my mind traveled back to the years 1921-1928 when I was Secretary of Commerce, and we all cooperated in a great crusade for the ideas you represent.

Many people probably even now do not appreciate in full the ideas which are embraced in your title of standardization and its subsidiaries, simplification and specification. Yet the philosophies behind these terms and the consequences of their application have played an enormous part in our whole economic development.

At that time the humorists sought to drown us in laughter over possible standardized women's hats. But in time we managed to sustain the conviction that we were wholly allergic to matters of style, for those vagaries were offsprings of joy, not of engineering. But we even helped to cheapen some hats by way of simplifying and standardizing parts in the milliners' machinery.

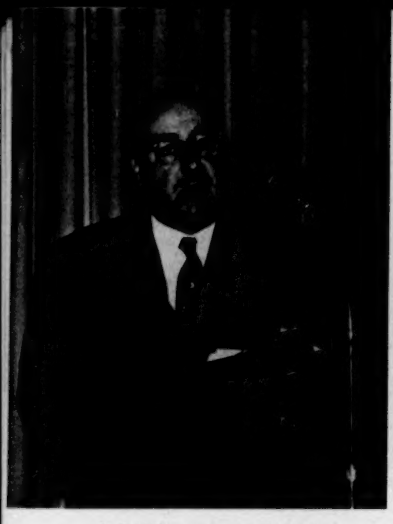
The ideas in our particular philosophy were concerned strictly with industrial products. Herein were standards of weights, measures, voltages, frequencies, heat, screw threads, spare parts, and what not. They included turbine generators, the parts of machine tools, automobiles, farm machinery, and hundreds of others.

Simplifications were concerned with eliminating unnecessary varieties and dimensions in such sordid things as fish plates, bricks, lumber, lamp sockets, automobile wheels, bolts, nuts, plumbers' fittings, and a million other things.

And we were concerned with writing specifications which would assure the consumer quality and performance. This catalogish statement, however, conveys no indication of their importance in our whole economic development. The public mostly assumes that this progress has come from scientific discovery of natural laws, new materials, inventions and increasing skills. But you and I know that the increase in our living standards and comfort has received an enormous contribution from these related ideas of standards, of simplifications and specifications.

They are at the base of all mass production. They make possible more continuous employment by manufacture for stock instead of dependence upon immediate and specialized orders. They have made it possible to conduct this fabulous productive machine with the least amount of spare parts and inventories in the hands of the consumer industries. They have sharpened competition. They have cheapened the cost of production in millions of directions. Thus they have been a factor in our rising living standards. They have enabled thousands of different articles to be placed within the reach of everybody. They do not impose uniformity on the individual, because they make available to him an infinite variety of additions to his livng.

This technology and its blessings reach unheralded into every household, not into industry alone. Before you set to work, the housewife had to shop for special electric lamps that would fit her sockets, for special needles for her sewing machine. At one time she had to trim the bedstead or the springs or the mattress to make them fit with each other. But now they all fit, no matter what the breed. The workman at one time had to find a bolt of the same make before he could screw a nut on it and had to search among a hundred different diameters.



R. E. Wilson presented Mr Hoover as recipient of Howard Coonley Medal

Award recipients with ASA president and president-elect in a moment of relaxation—(left to right) P. G. Agnew; Herbert Hoover; T. D. Jolly; Roger E. Gay

Now the half-inch nuts screw onto all the half-inch bolts and there are but two score of different diameters instead of two hundred. And the common man should be grateful that the three-score sizes of automobile wheels and tires have been replaced by about half a dozen sizes.

The sum total of all these ideas has contributed to making thousands of machines which have lifted the burden from the backs of men and women.

This work of your Association has brought another invaluable accomplishment. Only a few of the literally tens of thousands of standardizations or simplifications have been imposed by law. The vast numbers of them have been the result of spontaneous, voluntary, yet organized cooperation within highly individualized industry. To secure general acceptance of any one of them has been tedious at times. But their adoption has been playing a real part in the creation of the cooperation so vital among a free people.

Certainly it is true that the objects of organized society are to assure justice, freedom, respect for the dignity of men, and improvement and security in living. To this you continue to make a valuable contribution.

Citation

on Award of the Howard Coonley Medal for 1951 to Herbert Hoover

In all America, no great and honored name is more closely associated with the harmonious integration of human activities that is called standardization. As an engineer, as a public servant rising to the highest office of the land, as a private citizen working in the public interest, he has for more than half a century labored to reduce waste, improve efficiency, and increase production through standards. Stimulating and encouraging the study of waste in industry, he directed the attention of our people to the need for a national program of voluntary standardization. As Secretary of Commerce, he gave impetus to a growing movement by creating the Division of Simplified Practice, whose work he furthered as thirtieth President of the United States. As Chairman of the greatest effort ever made to plan an efficient, economical government reorganzation, which has universally come to bear his distinguished name, he called the attention of the world to standards as a key to administration. No American has done more to bring his fellowmen order, harmony, and riches through the liberating forces of standards.

Robert E. Wilson, chairman of the Board, Standard Oil Company (Indiana), presented Mr Hoover for the Howard Coonley Medal. "Here is a person who has never for a moment wavered between right and wrong, no matter what the advantages or the consequences," he said. "His rock-like integrity—his sense of duty—his indifference to ideas and trends that are merely fashionable—these and other great qualities have created a character that stands out on the American scene of the past half century like a monument.

"As a testimonial to these qualities—to his imperishable works in standards—and as a means of expressing our own personal regard for him, I would like to present him for the award of The Howard Coonley Medal."

Mr Hoover started his fight on waste as president of the American Engineering Council, which released its report just 30 years ago. He followed through as Secretary of Commerce. Here, "he made the frontal attack through the development, use, and promotion of a new and constructive economic force known as standardization," Mr Wilson declared. In the Department he set up a strong division devoted to "elimination of waste" through development of standards for the dimensions, quality, and performance of materials and machines. This is now the Commodity Standards Division, Bureau of Foreign and Domestic Commerce.

His work in recent years has been equally important.

Standardization was the subject of many feature stories in the nation's daily and technical press during the year. This exhibit illustrated the great interest shown in "The Strange Case of the Seven Sided Post Hole."

The Hoover Commission submitted 18 reports to Congress in 1949, and the techniques of standardization are important in almost all of them. Mr Hoover and his task forces constantly call for increased standardization of government processes in the interests of efficiency.

NBS—Fiftieth Anniversary

Honoring the National Bureau of Standards on its fiftieth anniversary, the American Standards Association presented a scroll to Dr A. V. Astin, acting director of the Bureau. "In the 50 years of existence which it is now celebrating, the Bureau has proved itself one of the most beneficent government agencies founded by this or any other country," ASA's President Jolly declared. "The Bureau was authorized by the Constitution in the words 'Congress shall have the power to fix the standard of weights and measures.' Today the work of the Bureau has broadened to include fields never dreamed of by the founding fathers."

Dr Astin holding scroll presented to National Bureau of Standards, receives W. C. Wagner's congratulations

Expressing pride in the Bureau's accomplishments and in its relationship with ASA, Dr Astin hoped that the work of developing voluntary standards will grow and that the Bureau will be able to continue furnishing assistance to ASA whenever requested. In the field in which it is primarily concerned—physical measurement—the primary standards of weights and measures are undergoing radical changes as the result of the work of the Atomic Energy Commission, he said. Electrical standards, originally based on a standard column of mercury of specified dimensions, have already been changed to a system of absolute units. A new standard of length is near completion, based on the wavelength of mercury 198, produced by transmuting pure gold through nuclear fission. The other two basic standards—mass and time—are undergoing comparable changes. The use of the atomic clock foreshadows a change in the standard of time from rotation of the earth to the rate of vibration in ammonia molecules.

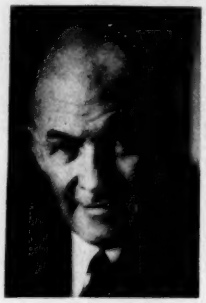
The citation reads:

"The American Standards Association honors the National Bureau of Standards for its development and custodianship of fundamental standards of measurement. . . Its contribution to the science and art of measurement. . . Its manifold services to science and to industry. . . Its innumerable researches. . . Its achievement in extending the use of the scientific method through its cooperation and assistance to other organizations and institutions, particularly in the advancement of voluntary standards. . . . Its leadership in technology throughout the world, thus promoting comity of nations. . . and . . . congratulates the Bureau on a half-century of service in the public interest and in the improvement of the standard of American life."

Officers for 1952

Roger E. Gay, president of the Bristol Brass Corporation, Bristol, Conn, was introduced at the Conference luncheon as newly elected president of the American Standards Association. Mr Gay is a member of The Brass Mill Industry Advisory Committee to the National Production Authority. He has represented the Copper and Brass Research Association on the Board of Directors of the American Standards Association since 1946.

In 1943, at 37, Mr Gay became the youngest president in the history of The Bristol Brass Corporation, itself 101 years of age. He is a director of the National Association of Manufacturers, chairman of its Industrial Problems Committee. Recently he was selected as a member of the Divisional Advisory Committee of the Northeastern Division of the U. S. Chamber of Commerce. His list of company directorships includes The American Hardware Corporation, The Research Corporation, The Whitney Chain Company, the Bristol Traction Company, Bristol Associates, Inc, Connecticut Mining and Milling Company, and Bristol Bank and Trust Company.



Edward T. Gushée

Edward T. Gushée, vice-president of the Detroit Edison Company, is ASA's newly elected vice-president for 1952. Mr Gushée has been interested in standardization and simplification for many years, not only in his company, but nationally as well. He served as chief of the Purchase Policy Branch, Ordnance Department, U. S. Army, during World War II, and as chairman of the Detroit Area Production Urgency Committee. In June 1947 he was appointed District Chief, Detroit Ordnance District, and still holds this office. He is a Director of the American Ordnance Association, and served as president of the Michigan Post, American Ordnance Association, 1945, 1946, and 1950.

In addition to his interest in purchasing problems, he is president of the Board of Trustees, Kent School, Kent, Connecticut, and author of the book *The Church Teaches.* In his business field, he co-authored the book, *Scientific Purchasing.* In 1937 he was awarded the Shipman Gold Medal.

Robert D. Bonney

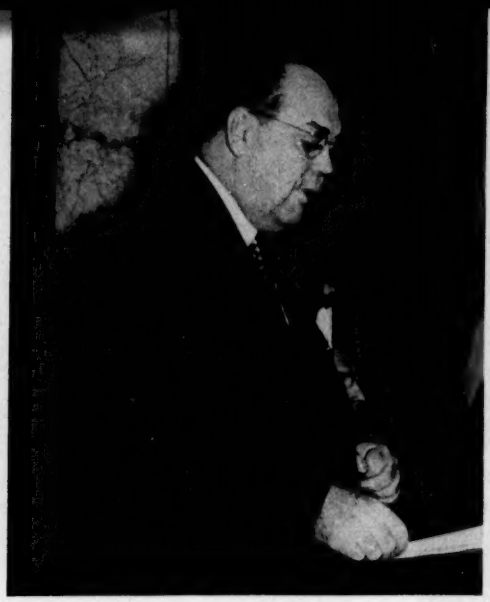
Willard Chevalier

New Board Members

Colonel Willard Chevalier taking office January 1 as member-at-large on ASA's Board of Directors, brings to the Board the wide interests of an outstanding engineer-publisher. Now executive vice-president of the McGraw-Hill Publishing Company, Colonel Chevalier had worked as an engineer on the New York City subways, the New York State Barge Canal, and on several industrial and public utility projects before he entered the publishing field in 1922. He started as Associate Editor of *Engineering News-Record.* Since 1948 he has served as consultant on technical publishing to ECA's Anglo-American Council on Productivity. In 1926 he was responsible for a pioneer venture in journalism — a pictorial review, *Construction Methods,* published by McGraw-Hill. Elected vice-president in 1934, he took charge of two additional McGraw-Hill publications—*Coal Age* and *Engineering and Mining Journal.* In 1938 he became publisher of *Business Week;* in 1944 Executive Assistant to the president; and in 1950 executive vice-president of the McGraw-Hill Publishing Company. An Honorary Member of the American Water Works Association, Colonel Chevalier was awarded the John M. Goodell Prize in 1934. He holds an Honorary Degree of Doctor of Engineering from the Colorado School of Mines as well as from the South Dakota School of Mines. Colonel Chevalier is past president of the Highway Industries Association, the American Road Builders Association, the Water Works Manufacturers Association, and the New York Section, American Society of Civil Engineers.

Robert D. Bonney, elected to ASA's Board on nomination of the American Society for Testing Materials, is director of manufacturing for Congoleum-Nairn, Inc. He has been active in the paint industry since he joined the staff of the Congoleum Company, Marcus Hook, as chief chemist in 1918. Last year he served as president of the Federation of Paint and Varnish Production Clubs, and for many years has had a leading role in the American Society for Testing Materials.

The list of his ASTM activities makes impressive reading. He is a member of the ASTM Board of Directors, of the Administrative Committee on Ultimate Consumer Goods, of Committee D-6 on Paper and Paper Products, and of Committee D-8 on Bituminous Waterproofing and Roofing Materials. He served as chairman of the powerful Administrative Committee on Standards from 1946 to 1950; and was a member of Committee D-1 on Paint, Varnish, Lacquer and Related Products and its Advisory Subcommittee from 1932 to 1948. His hobby is farming and cattle breeding.



Strengthening America Through Standards

Note: These reports of the National Standardization Conference consist of digests and summaries of talks presented at the various sessions. Copies of the individual papers can be obtained from the American Standards Association. A complete record of the Conference is being published in a separate volume.

Left: D. A. Hulcy's "free enterprise" message on behalf of the business community keynoted the Conference

D. A. Hulcy, president, Chamber of Commerce of the U. S., called for standardization free of government control in his keynote address—

Your invitation to keynote this 33rd Annual Meeting of the American Standards Association struck a warm chord on my heartstrings.

First, because the development and application of voluntary standards means so much to my own industry.

And second, because the Chamber of Commerce of the United States is keenly concerned with standardization.

Today it is emphasizing the urgency of voluntary standardization in light of our mobilization effort.

The National Chamber calls for standardization that is free of government control.

It salutes the great work so far accomplished as a major contribution to orderly industrial development.

It commends business firms that have supported standardization activities, and it urges others to examine its possibilities.

The National Chamber urges all industry to intensify standardization efforts to achieve the best use of the nation's industrial capacity when America must rearm itself and the whole free world.

"Strengthening America Through Standards" might well be the text for a sermon.

Or it might well be a watchword for all of us who are concerned with the safekeeping of our American society against dangers from without and from within.

The American story is one of invention and scientific marvels, to be sure, but it is also a story of incentives in which the manufacturer, the merchandiser, the advertising man, and the salesman play stellar roles.

Ben Franklin went fishing for electricity with his kite-string and his key in the Eighteenth Century, but he didn't think of electricity in terms of vacuum cleaners and pop-up toasters, or standardized light bulbs that fit standard sockets.

Marconi could flash messages across the Atlantic by wireless in the year 1901, but he couldn't make the radio a standard piece of household furniture.

No one man could. No one man did.

Inventors invent, but business men adapt.

You could invent a modern version of Aladdin's lamp, and it would gather cobwebs on the shelf unless you could sell it at a price that people could pay.

The business man's purpose in adaptation is simple.

He is after personal success.

But in America success means pleasing the customer.

And that involves greater productivity, greater efficiency, getting his attention, and above all, winning his trust by dealing with him on the square.

We owe our solid gains in our standard of living to this struggle for personal success.

Each generation, there are more goods for more people; higher wages for the worker; and steady earnings for business from volume sales at lower unit costs.

A man starts out for personal success, and his success gets passed around.

It enriches the lives of all Americans, and its bounty overflows to other people all around the world.

But when the struggle for success is handicapped through direct controls by government or indirect controls such as taxes, the incentive watchworks of our system first slow down and then threatens to stop ticking.

Today, we need more investment for production, and that in turn means more work opportunity and higher earnings for workmen and investors alike.

We need more investment for research on better products at lower cost; we need more investment for invention and new products.

I have been bold enough to set down what I call five standards for action by the business community in leadership toward a more prosperous, more secure America.

First, business was never in more favorable position to speak with the voice of leadership, and it was never in more favorable position to be heard.

Second, the colossal flops of socialistic experiments abroad are common knowledge in America.

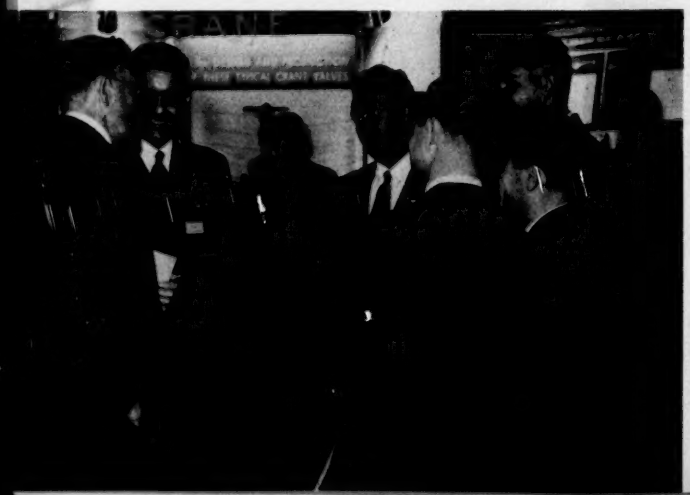
Third, let us emphasize that what hurts business in America hurts America.

Fourth, let us get off whatever high horse we may have been riding and talk in everyday language about our problems and about what we really do for a living.

Fifth, let us burnish our own armor of morality.

This is one time when business must be like Caesar's wife, above reproach.

Earl H. Eacker, president, Boston Consolidated Gas Company, introduced Dechard A. (Deck) Hulcy, as the keynote speaker by quoting Texas Wesleyan College's citation when it gave him its Honorary Doctor of Laws degree last year. The citation read: "Shining example of American genius and opportunity, overcoming lack of early education by an imperial will to achieve and grow." An example of this "imperial will" has been the growth of the Lone Star Gas Company, of which Mr Hulcy became president in 1940. Since that time the company has more than doubled in size. It now operates 13,000 miles of pipelines serving 514,000 customers in 360 cities, towns, and communities in Texas and Oklahoma. Past-president of the American Gas Association, he also helped originate AGA's Promotion, Advertising, and Research Committee. He helped overcome the waste of casinghead gas by developing technical methods for using the gas which a few years ago flared from every oil field. He explains his success by saying that he "just worked harder."



Popular Conference pastime—exchange of ideas and study of "use of standards" exhibits. (Above) President Jolly, left, and President-elect Gay in an informal moment. (Below) W. C. Wagner holds group's attention.

Thirty-third Annual Meeting

T. D. Jolly, vice-president, Aluminum Company of America and president of the American Standards Association, opened the thirty-third annual meeting, a joint meeting of ASA's Board of Directors and Standards Council, Company Members, and guests. His talk, "In Standards There Is Strength," offered a variation on the theme of the conference:—

In the next few years we will come up against economic problems that are terrible in their complexity and in their possible consequences. Perhaps the most dangerous of these will arise from the spectacular expansion of our production facilities.

Between 1940 and 1950 this country nearly doubled its installed generating capacity, and we will raise it another 35 percent in the next three years. By the end of next year we will have an annual steel-making capacity of 118 million tons—nearly half again as large as when World War II began and nearly one-fifth larger than when it ended. In 1939, annual aluminum smelting

Earl H. Eacker (at the podium) introducing D. H. Hulcy, keynote speaker, at Thirty-third Annual Meeting session (Left to right) T. D. Jolly; Mr. Hulcy; Mr. Eacker; Dr. A. V. Astin; W. C. Wagner; Vice Admiral G. F. Hussey, Jr.

capacity was 350 million pounds. It is 1.5 billion pounds today and it will go up another 1.2 billion pounds in the next few years—an increase of 772 percent in less than 15 years.

In some unknown year, probably in this decade, American industry will have to face the problem of conversion. What will it do with all this capacity? How will individual companies, individual industries and the economy as a whole meet the problems of the higher break-even point?

We are counting on the same revolutionary economic formula that has so far given a solid base to our rapid industrial expansion—on what the Brookings Institution calls the primary commandment of capitalist dynamics—"to constantly expand markets by an orderly, systematic, and slowly continuous passing on of technological improvements to the consumer in the form of lower prices."

Technological improvements can mean many things. One is standardization—the factor that facilitates the integrating processes necessary to both large-scale production and distribution. In order to increase sales volume in proportion to increased production facilities and capital investment, we will have to lower real prices. One way to do that is to develop better production methods—longer factory runs with fewer change-overs; fewer idle man hours; simplified inspection requirements; larger production units; less special machinery; less obsolescence in material and equipment; fewer rejects and returns; better materials handling—the whole sequence dependent on or closely related to the science of standardization of parts and practices.

Two conditions must be met if we are to develop and use the standards our economy now requires and will need in the future.

One is a growing, expanding national standardization movement supported by private industry and carried out on the principles of voluntary cooperation by industry.

The second is that government and industry must respond to the absolute national need at this time for cooperation in the field of standards. The impact of science, technology, and perpetual international crisis upon our institutions has been so enormous that it is no longer possible to keep the functions of government and the functions of industry in separate water-tight compartments on the old theory that, like oil and water, they cannot and should not mix. In standards, especially, government and industry must put aside their distrust and rivalry and work together toward a common end.

Government people sometimes lack adequate information, particularly at the day-to-day working level. Some of them even believe that the use of a purely industrial specification in government procurement is in some way illegal or at least morally wrong. Thus they may not know that a perfectly adequate standard product exists; or if they know, they may not care; or they may actually object to using it.

Government procurement men want the best possible product. They will get it—and get it quickly and cheaply—if they cooperate with industry in drawing up the standards for it—if they draw on the high technical talents of the men who design, manufacture, distribute and sell the nation's goods. They cannot get it if they are content to order industry what to make and how to make it, with inadequate consideration for industry experience and facilities as set forth in industry's own standards.

ASA is the primary instrument that private industry has chosen to weld conflicting standards into a comprehensive, unified national system of voluntary standards. And ASA is the logical place where government and industry can meet in standards work as partners on common, equal grounds.

Until a few years ago, the Federal Government participated fully in ASA work and with a notable degree of harmony and cooperation.

In 1948, however, the American Standards Association incorporated itself under the laws of the State of New York, and the Government agencies, for technical legalistic reasons, were required to withdraw from membership. Since that time, they have participated in our activities only in a liaison capacity. Both government and

industry have lost by this development, but the cause of standardization has suffered most of all.

The answer is simple. It lies in incorporating the American Standards Association under a federal charter similar to that enjoyed by the Red Cross, the National Academy of Sciences, the Carnegie Institution of Washington, the American Social Science Association, and several hundred other organizations. With such recognition by Congress, Government agencies would be free to work with ASA again on an administrative basis. Such an action would firmly establish the policy of close, systematic cooperation between government and industry in standards work. And it would clear up the present negative, psychological atmosphere and thereby remove the block which now impedes fruitful cooperation between government and industry.

Vice Admiral G. F. Hussey, Jr, USN (Ret), managing director of the American Standards Association, reporting to the annual meeting, paid tribute to the work done by the ASA Board of Directors during the past year. The Board's activities have resulted in an increase of two Member-Bodies, eight Associate Members, and 71 Company Members. The ASA is ending this year with bills paid and a small reserve in the bank, he declared. During the past year a nationwide increase in interest in standardization was indicated by a flood of clippings showing standards to have been the subject of articles in a wide variety of newspapers and magazines. The work of the public relations firm, Ketchum, MacLeod and Grove of Pittsburgh, helped to build up this interest and the firm is being retained next year.

Mrs Helen K. Jones was honored for 25 years' service with ASA when President Jolly cited her as "a fine and devoted worker" and gave her a United States Savings Bond. Mrs Jones started work at ASA in 1926 as secretary to the assistant director when the technical staff numbered three men. She now helps Dr John Gaillard run ASA's Mechanical Standards Department.

Walter C. Wagner, chairman of the Standards Council, reported approval of 103 new standards and revisions of 68 previously approved standards during the past year. Mr Wagner, Executive Department, Philadelphia Electric Company, is completing his third term as chairman of the Council. However, "his services will not be lost to ASA, to the Council, or to standards," Mr Jolly explained in introducing him. As past-chairman he will continue to serve as a Council member as well as on the Board of Directors. Mr Wagner has been a member of the Council since January 1, 1929.

Textiles, electronics, mechanical engineering, industrial safety, electricity, photography, gas burning appliances, highway safety, industrial health, and building codes were some of the fields of work and products covered by the new standards, Mr Wagner reported.

Although the numbers in themselves are not great, he commented, "when we think in terms of the some 1230 American Standards which are now before the world, we think of the correlating processes which have taken place, the opportunities for participation which have been provided, the rights of majorities and minorities which have been protected, the freedom from domination and coercion with which the work was conducted, and, finally, the standards themselves as tangible evidence of the ability of people and groups to work together for the common good."

Mr Wagner urged that Member-Bodies of ASA always be ready to adjust ASA methods so that the maximum of service shall be rendered. He noted that not a single new standard had been submitted to ASA for approval under the Existing Standards Method of ASA procedure between the beginning of the year and October 1. This is the method under which technical societies, trade associations, and other groups can submit standards which have been developed under their own procedures for the purpose of securing the acceptance by all other groups directly concerned and thereby attain the designation "American Standard."

The advantages to these organizations of processing their standards through ASA were outlined:

(1) Increase the prestige of the organization which developed the standards

(2) Provide tangible evidence that the standard had been developed in the public interest and not just solely for private interest of the organization which initially developed it

(3) Develop improved relations with other groups actively concerned with the subject matter

(4) Show that the standard is authoritative in its field

(5) Make less likely the future development by other groups of similar standards with differing and possibly conflicting requirements; and

(6) Give tangible evidence that the voluntary enterprise system of industry, by and for industry, is the one effective means we have to insure effective industrial progress.

American Ordnance Association's President, Colonel James A. Walsh, USA (Ret) takes part in a discussion; left, William C. Newberg; right, Louis Polk, moderator

Industrial Standards for Defense Production

Session Sponsored by the
American Ordnance Association

Above: Lee Coleman, Bureau of Ordnance, asks for more information. Below: Present and past chiefs of U. S. Navy's Bureau of Ordnance exchange greetings—Rear Admiral Schoeffel, left; Vice Admiral Hussey, right

With Louis Polk, Vice-President of the American Ordnance Association, as moderator, the session on "Industrial Standards for Defense Production" presented a panel of seven authorities on ordnance problems in industry and in the Armed Forces. Three speakers set the stage for the active discussion that followed.

K. H. Condit, Dean of the School of Engineering, Princeton University, urged that everyone concerned make sure that engineers are being used to their maximum capacity since the supply of new engineers promises to fall off sharply during the next few years.

William C. Newberg, President of the Dodge Division, Chrysler Corporation, warned against pursuing standardization for its own sake.

R. C. Sogge, Executive Department, General Electric Company, Schenectady, pointed to the need for greater understanding on the part of both industry and Government of the cooperative nature of standardization.

Questions were answered on behalf of the military services by Brigadier General Merle H. Davis, USA, Chief of the Ammunition Branch, Office Chief of Ordnance, U. S. Army; Colonel Whitmell T. Rison, USAF, Director of Procurement and Engineering, Office of the Chief of Air Force; and Rear Admiral M. F. Schoeffel, USN, Chief of the Bureau of Ordnance, Navy Department. Appearing on the panel on behalf of industry were Donald A. Quarles, Vice-President, Bell Telephone Laboratories; Dale Roeder, Executive Engineer, Com-

mercial Vehicles, Ford Motor Company; and Brigadier General H. A. Shepard, USAF (Ret), Vice-President, Thompson Products, Inc. Colonel James L. Walsh, USA (Ret), President, American Ordnance Association, represented the viewpoint of both groups.

Dean Condit declared that Masters and Doctors of engineering are in greater demand since the war because of the rapidly growing importance of research and development work. At the same time the output of men holding a BSE degree is decreasing. Some 50,000 young engineers graduated in 1950, and 38,000 in June 1951. Indications are for only 25,000 in June 1952; 19,000 in June 1953; and between 12,000 and 15,000 in June 1954. Conservative estimates indicate that industry alone will need 30,000 new engineers a year; other estimates run up to 80,000. Defense Department units will undoubtedly want at least as many. Therefore, industry can expect to have available only half the number to be graduated, or less, since a certain number will not go on into technical work. Industrial research activity has increased some 500 percent in the last ten years; the number of engineers has only doubled. While the Soviets are educating and training upwards of 100,000 scientists, engineers, and technologists each year, our quantity is lagging materially.

As a long-range solution our engineering schools should be enlarged. As a short-range solution industry should make more extensive use of men with only two years' training. As for military service, it is little short of criminal, Dean Condit declared, to draft engineers and then assign them to nonengineering duties.

Mr Newberg described some of the techniques developed by his company for maintaining standards without interfering with technological advances. To supply repair parts for the nine or ten million Chrysler-built vehicles in use in the United States, including some 1,000 different models dating back to 1924, Chrysler has set up a Service Engineering organization. Its objective is to secure interchangeability of parts and part assemblies without putting a freeze on progress. Service Engineering has no veto power over new designs; it can, however, call for consideration of alternate methods to obtain an improvement without loss of interchangeability. Its great service is in consolidating groups of similar parts. Many hundreds of categories of parts have been consolidated. Of 20 selected at random, 5,000 items originally made are now being replaced by only 2,200 items.

For military equipment, three basic factors should be considered: (1) *Performance.* Will the tank, truck, plane, or gun do the job intended? (2) *Production.* Can it be built and delivered in the quantities necessary for its use to be effective? Are there enough materials, tools, and skilled workers available to make the item? (3) *Maintenance.* Once we build the item and get it in the field, can we keep it in operation? Standards set up to take care of one of these factors must be weighed for their effect on the other two.

For example, production of the B-29 bomber during World War II was slowed because of the peacetime practice of specifying closer tolerances for all surfaces and dimensions of engine parts than are actually necessary for successful operation of the engine. During periods of low production, this practice maintains workmanship at a high level. Wartime production of B-29 engines, however, reached 18,000 in two years, and each engine contained about 17,000 parts. In two years, something like 31 million parts were made and assembled by unskilled workers recruited at the height of the manpower shortage. Some parts carried from 50 to 100 specifications. No previous information was available to show which specifications were more rigid than necessary. A Quality Review Board was set up to inspect any part that regular inspection showed to be slightly off. If the part's functionalism, interchangeability, and other characteristics were not impaired, the Board accepted it and sent it on for release to assembly.

When tests showed that deviations from specifications were practical, deviation drawings were made up for the Board's guidance.

Highly skilled workers and valuable close precision tools should only be used on jobs where rigid adherence to exacting standards is vital, Mr. Newberg emphasized.

Until overly-rigid standards can be corrected at the source, he suggested establishing a procedure for passing information about deviations from standards on to all manufacturing plants.

Mr Sogge said that when Government contracts call for standards that are different from those with which industry is familiar, it is necessary to make adjustments in routine, retrain the organization, and order special materials and components. Subcontracting is especially difficult when industrial standards are not applicable. Closer cooperation and understanding between Government and industry are needed to avoid this loss of time and money.

Some in the military seem to feel that the Government should dictate to industry, and some in industry that Government should take what industry makes without change. It was disappointing to learn from British industrialists that a meeting on Drafting Standards was held in Ottawa last year, attended by British military and industrialists, Canadian military and industrialists, U. S. military, but not U. S. industry.

The development of proper industrial standards is a cooperative activity, and barriers which have prevented most effective cooperation should be studied and overcome. For example, Government representatives on ASA sectional committees have been handicapped in being advised that they may act only on a liaison basis.

Defense production will be greatly benefited from cooperatively developed standards. However, whenever there is unification of standards, procurement specifications should be promptly revised. At present, many individual Service specifications and drawing references continue to lag the industry, although the different

branches of the Service may have agreed to a revised standard. For example, A-N drawings on hardware still call for the old Class 2 or Class 3 tolerances although industry is now turning out products with the new Class 2a, 2b, 3a and 3b fits.

Discussion

A question from the floor brought an emphatic denial from General Shepard that there was any danger of obstructing improvement in design through over-standardization. Performance is always rated first, but the use of standardization in the production of new and better designs makes it possible to produce thousands of first-class items in a short period of time.

Electronic tubes used in home radio receivers are inadequate for military use, Mr Quarles replied in answer

"Fit, interchangeability, satisfactory operation of roll films in hundreds of different cameras is assured by American Standards," Ansco exhibit points out. H. R. Moulton, American Optical Company (left) and R. A. Miller, Pittsburgh Plate Glass, look over data on chemicals, film speed, photographic papers, and quality control

to a question about the stabilization of electrical characteristics of vacuum tubes. This problem is causing a great deal of trouble to instrument manufacturers, it was explained. Vacuum tubes that are more stable, more reliable, and that have longer life will cost more.

The problem of maintaining electronic equipment at sea is one of the most pressing problems faced by the Navy's Ordnance Department, Admiral Schoeffel commented. This is partly due to the fact that 95 percent of the highly competent electronic personnel formerly in the Navy have now retired to civilian life.

General Davis explained that as an ammunition man he is very much interested in the sub-miniature tubes which go by the millions into VT fuzes. Here, every operation lends itself to mechanization and consequently it is possible to maintain greater uniformity of product.

Replying to a question as to the companies' use of a Review Board on new products, Mr Roeder replied that the Engineering Department reviews deviations from any standard. Mr Newberg's reply outlined the procedure followed in putting into production a new component, such as a shock absorber. For the first few days the job is run by job setters, until each machine is producing the part as near to the blueprint as possible with the particular tooling used. Several engineers and master mechanics are also on the job. The master mechanics, or the people who do the tooling, are responsible for providing adequate tooling to make the parts. To check on its performance, the part is placed in the complete assembly and a test is run. The machine is not turned over to production until the complete assembly performs as intended.

Dr John Gaillard, ASA staff, picked up the question, "What is being done, if anything, about changing the half inch-13NC thread to the half inch-12 Unified? Will a new government specification call for the half inch-12NC?" Dr Gaillard explained that a British delegation which visited this country in 1950 found that the ½ inch-12 coarse thread, listed in the Unified screw thread system as a result of the Ottawa conference in 1945, had not been adopted in practice by industry and the military services in the USA. The use of the American Standard ½-13 thread had been continued. Subsequently the British suggested that the ½ inch-12 coarse thread in the Unified system be changed to the ½ inch-13 thread. This change has been considered by the ASA committee on Screw Threads and is now close to formal approval.

Concerning participation by the military services in standardization work with national technical societies and associations, General Davis explained that a law passed by Congress more than a year ago legalizes the integration committees which Army and Navy Ordnance used to good advantage during World War II. However, some in the Government still seem to feel that there is something deadly wrong with these committees. What could be there wrong in the free exchange of information between our contractors and ourselves, the General asked?

Dr Gaillard replied to a question on progress being made on interchangeability of British and American screw threads.

No general unification has as yet been agreed on in regard to thread sizes below ¼ inch, he said. The British prefer to continue using their British Association (BA) threads for the internal assembly of their products, such as electrical equipment and instruments. However, they have come to an agreement with the Americans on the choice from the American Standard threads below ¼ inch (numbered sizes) for use in fastening complete assemblies, such as instruments, to other equipment. An example is the assembly of an aircraft instrument to the instrument board of the plane. Discussions on this point are in an advanced stage.

S. H. Watson, RCA Victor Division, Radio Corporation of America, (left), was introduced as CMC's newly elected chairman for 1952 by W. P. Kliment, retiring chairman

Company Member Conference

W. P. Kliment, Crane Company, served as chairman of a full-day meeting attended by engineers and executives responsible for the use of standards in companies that are members of the American Standards Association. Mr Kliment was completing his term of office as chairman of the Company Member Conference. During the past year, he announced, membership of the Conference has increased from about 200 to some 700.

New members of the Administrative Committee, elected during the meeting, will help in carrying forward the Conference program next year. They are: J. L. Walker, Texas Company, New York; F. Nagler, Allis-Chalmers Manufacturing Company, Milwaukee, Wisconsin; W. B. Fleming, Jeffrey Manufacturing Company, Columbus, Ohio; K. B. Clarke, Manufacturing Engineering, Western Electric Company, New York; and Robert G. Cummings, Engineering Laboratory, Ford Motor Company, Dearborn, Michigan.

A testing laboratory, a railroad association, a manufacturing company, and a national group working to cut product losses through packaging, presented their standardization stories at the October meeting. Active discussion following the speeches indicated the depth of audience interest.

Summaries of the Speeches

Merwin Brandon *The Relationship of Underwriters' Laboratories to the American Standards Association. Merwin Brandon, Vice-President, Underwriters' Laboratories, New York.*—The purpose of Underwriters' Laboratories is to get safe electrical equipment into the hands of the public. It is not necessarily concerned with performance. Agreed upon requirements guide UL engineers in testing equipment, and help manufacturers in designing and producing equipment to meet reasonable standard safety requirements. Standard requirements are checked with manufacturers and others concerned, but the final decision on them lies with the Laboratories' staff. This method provides for flexibility and makes quick changes possible. Due to the difference in manufacture from one plant to another, standards must be designed to provide for recognition of equivalent performance or construction from a safety viewpoint.

Few UL requirements are approved as American standards although some are included in American Standards for electric ranges, water heaters, etc. When changes were proposed in a UL radio receiver standard approved by ASA, two years and some $1,000 in engineering time were spent in processing what seemed to UL very minor features. Therefore, UL believes that where frequent change is expected in requirements, the slow process of approval by ASA is inadequate, perhaps not applicable, and, perhaps, was never intended to be applicable.

Editor's Note—W. C. Wagner, chairman of Standards Council, has not only asked ASA Member-Bodies to suggest improvements in ASA procedures, but has already requested the Committee on Procedure to study the possibility that ASA procedures may need revising in some cases.

Gerald M. Magee *Railway Research Promotes Standardization. Gerald M. Magee, Research Engineer, Association of American Railroads, Chicago, Illinois.*—Through the engineering, mechanical operating-transportation, and purchases and stores divisions of its Operations and Maintenance Department, the Association coordinates and standardizes methods and materials for operations and maintenance on railways in the United States, Canada, and Mexico. Differences in design and specifications are largely the result of an inadequate understanding of the functions of a given design or the requirements for a given material. Well planned and comprehensive research brings all the facts to light so that divergence of views will be crystallized into one acceptable design or specification. At one time there were as many as 12 different rail sections, all of the same weight per yard. Research conducted by the Association, using modern electrical strain-measuring equipment, has led to acceptance of a minimum number of rail sections.

The SR-4 type gage and recording oscillographs capable of measuring high-frequency stress change makes it possible to accurately determine what stress requirements are placed on a given material or whether one design is an improvement over another.

Standardization based upon accurate and comprehensive data will establish when a material is best suited to the purpose. Recommendations supported by adequate research are voluntarily accepted by the railways.

A joint committee established between the Rail Manufacturers Technical Committee of the American Iron and Steel Institute and the Rail Committee of the AAR meets two or three times annually. Research sponsored by this group solved the transverse fissure problem. Since 1937 all rails rolled for use in the United States have been control cooled and no true transverse fissures have developed in more than 15 million tons now in use.

The Track Committee meets with the Standardization Committee of the Manganese Track Society and prepares standard plans for all frog, switch, and crossing units. Research work verifies improvements in design or specifications where additional knowledge will be of value.

The Committee on Car Wheels meets with representatives of the wheel manufacturers to establish standard specifications and designs for car wheels.

The Association is represented on ASA Sectional Committee B18 on track nuts. A surprising multiplicity of designs had come into use. Through this committee, the sizes of track nuts being manufactured by the various producers were studied and a minimum number of track nuts were proposed to meet railway needs. To establish the minimum dimensions of a nut which would have sufficient stripping strength to break the track bolts, the committee arranged for a comprehensive series of tests on track nuts of different sizes, thread fit, and carbon content. A special dynamometer was constructed to indicate the applied tension and torque while the nut was being wrenched up. As a result of this work a greatly simplified list of track nuts sizes has been developed which railway users can accept with confidence.

L. M. Dalcher *The Role of Administrative Standards in Business and Industry. L. M. Dalcher, Superintendent of Standards and Publications, Fairbanks, Morse and Company, Beloit, Wisconsin.*—To help supervisors do their job better and more

Below: (Top) R. F. Bisbee told how to package products safely (Center) Lighter moments cemented friendships—Colonel R. H. Pender; Admiral Hussey; W. S. MacLeod

easily, instructions on administrative procedures and problems are being issued as standards and handled by the standards department. With one system instead of many, supervisors have only one book to refer to and can more easily keep it up to date. The standards department has the special skills needed for preparing clear, concise instructions. Such administrative standards coordinate the efforts of separate groups working on different phases of the same problem. They promote consistency in the handling of repeated functions, and serve to convert solved problems into routine procedures, thereby making the solution a matter of record and a future guide for all concerned.

(Because of the interesting procedures Mr Dalcher outlines, this paper is being published in full in STANDARDIZATION, January, 1952.)

R. J. Bisbee *Methods of Evaluating Savings from Standardization. R. J. Bisbee, Manager, Quality Control, Westinghouse Electric Corporation, Mansfield, Ohio.*—One of the major standardization projects developed by the Westinghouse plant at Mansfield is called Standardization of Preshipment Testing. It has now become a national standard known as the National Safe Transit Program.

This is a cooperative industry plan to reduce losses from shipping damage. Total losses of all carriers and refused claims amount to about $225,000,000. In 1949, the railroads of the United States alone paid back to shippers on claims for loss and damage on freight amounting to $113,844,712—equivalent to $1.53 on every $100 of revenue.

To solve the problem, a National Safe Transit Committee was formed, sponsored by the Porcelain Enamel Institute. It brought together the manufacturers of a wide variety of products represented in the Institute, the carriers, container manufacturers' associations, testing equipment suppliers, and commercial packing testing laboratories.

The goal was prevention, rather than cure. The method worked out over an 18-year period is based on the premise that if the packaged unit is tested before shipment, weaknesses in the packing or the product can be corrected before losses occur. Two preshipment tests have been developed, one for packaged units weighing 100 lb or more and one for those weighing less than 100 lb.

As the result of extensive research into carloading practices, a manual has been published recently on the proper loading of appliances in cars.

Properly used, the standard procedures will solve the damage problem; improperly used, they would eventually discredit it.

Manufacturers who use the procedure must be certified, and the Safe Transit label may be used by certified manufacturers only on packaged units tested in accordance with the National Safe Transit Projects. Certified laboratories make periodic reports of tests carried out under the procedures.

The program has been in operation for about three years. Manufacturers turning out the major volume of goods within the present scope of the projects are now members—88 in number, about 70 percent of the total volume of products.

Already there has been considerable reduction in the total of damage claims on appliances and allied metal products. Reports by Westinghouse distributors on total products received and total products found to be damaged show that in 1937 the loss amounted to 3 percent. In 1950-51, the loss amounted to 0.8 percent. This amounts to a saving of $490,000 per every million products.

Discussion

Underwriters' Laboratories have endeavored to cooperate with manufacturers just as far as possible without jeopardizing the principle of safety to the public, Mr Brandon explained in reply to a question from the floor. Practically all towns or governmental bodies recognize UL listing as meeting their requirements.

A question as to how manufacturers can keep track of revisions to UL requirements was answered by calling attention to some 70 published requirements which are freely distributed. Each covers the basic requirements in a fairly broad field.

Mr Magee replied to a question on how often AAR specifications are reviewed and what procedure is followed by explaining that most committees meet two or three times a year. Some manufacturers of equipment are on these committees. Anyone interested in a particular subject can write to the American Railway Engineering Association and the problem will be referred to the proper committee.

Wherever possible, American Standards are adopted by AAR for its own use, although AAR standards have not been submitted to ASA for approval as American Standard, he said.

Comment from the floor emphasized the standards work done on track nuts. Industry has worked cooperatively in Sectional Committee B18 with the American Railway Engineering Association and with the Fasteners

CMC audience stopped for copies of the session's papers, available on exhibit table outside the meeting room

Institute in developing a new edition of American Standard on Track Bolts and Nuts. Work on this standard is now near completion.

A number of questions asked for greater detail concerning the procedures followed by Mr Dalcher's company in distributing administrative standards within the company. A separate distribution envelope for standards is used, Mr Dalcher explained. Each person responsible for a standards manual receives an envelope. When the material has been put in the binder, any standards that have been superseded are returned in the envelope to the Standards Department as a check on whether the proper substitution has been made.

The same format is used for both technical and administrative standards, Mr Dalcher explained in reply to further questions.

Answering a comment that in some companies individual departments were reluctant to let someone else handle administrative matters, Mr Dalcher explained that the standards division had to do a selling job with management to get the idea started. They had been able to win the support of top management by convincing them that the Standards Department could be of help. The Standards Department did not push for standardization but set up a framework to handle problems. Part of its problem now is to make sure that it does not initiate standards that are not needed.

Asked how many employees are involved in this standardization work, Mr Dalcher explained that he is primarily concerned with one plant which has 6,000 employees. Different standards are sent out to different groups but at times they may have a distribution of as many as 600 copies of one standard within the one plant. The Standards Department handles both technical and administrative standards. There are five or six employees in the department. In connection with technical standards they lean heavily on the engineering departments for assistance.

Mr Bisbee was asked about the cost of preshipment testing. He explained that the equipment costs about $2,000 and requires one man to run the tests.

Cyril Ainsworth, ASA Technical Director, (standing left) explains a point at CMC meeting. Panel (left to right) L. M. Dalcher; G. M. Magee; W. P. Kliment. M. Brandon and H. Lamb (CMC secretary), are shown below.

The tests were worked out for civilian goods shipped under normal circumstances and he does not know whether they would meet military requirements, Mr Bisbee explained.

In reply to a question from the floor as to whether the losses and claims paid by the railroads show real savings, Mr Orford of the Railway Express explained that prior to adoption of this program manufacturers had filed claims on which it was difficult to determine the actual reasons for damages. Therefore, it had been the custom to settle most of the claims on a compromise basis of 50 percent. With the new system in effect, the railroads are convinced that claims are due to unusually severe handling by the carrier and such claims are now being paid in full.

Asked whether plans are being made to expand this program to other products, Mr Bisbee said that information can be obtained by writing the National Safe Transit Committee, 1010 Vermont Avenue N.W., Washington, D. C.

Colonel Richard H. Pender, Munitions Board Standards Agency, was introduced at the Company Conference

Colonel Richard H. Pender *Munitions Board Standards Agency*

—Colonel Pender told the Company Conference that he is in favor of a suggestion made by Chairman-elect S. H. Watson that military-industry cooperation be the subject of the Committee's program for next year. He called attention to the fact that his Agency is publishing an annual index to military specifications, with monthly supplements. The Federal Specifications Board publishes an index to Federal Specifications, which are available from the Superintendent of Documents at a fixed fee. The Board is endeavoring to provide information as to where military specifications can be obtained and hopes to reduce the number of sources as a service to manufacturers. The Munitions Board Standards Agency is interested in working cooperatively with industry and with the General Services Administration to avoid duplication of effort, Colonel Pender declared.

Standards for Purchasing and How to Use Them

Session Sponsored by the Committee on Standardization, National Association of Purchasing Agents

Right: Speakers who urged use of standards as tools for more efficient purchasing: (from left) J. H. Foote; Vincent de P. Goubeau moderator of this session; J. S. Davey (speaking); Arthur E. Pringle II; Robert J. Painter

The purchasing agent, frenziedly trying to support production lines for both civilian and military work, is reaching out for every tool that can be of help, declared Vincent de P. Goubeau, moderator of the Purchasing session. Mr Goubeau is vice-president in charge of materials, RCA-Victor Division, Radio Corporation of America, and vice-chairman of the NAPA Standardization Committee. He urged purchasing executives to evaluate the tools and services offered by standardization, determine to what degree they are used, and take steps to make standardization a top priority interest in their purchasing departments.

"In our company we have a requirement that new products must tie in with engineering before purchasing can touch them," he said. This constant coordination between engineering and purchasing prevents friction from developing between the two viewpoints. Mr Goubeau credited T. D. Jolly's recognition that standardization offers purchasing agents an opportunity for progress as the spark which brought about organization of the NAPA Committee on Standardization.

Standardization as Applied to Mass Production

J. S. Davey Assistant General Sales Manager, Russell, Burdsall and Ward Bolt and Nut Company, Port Chester, N. Y.—

More than 125 manufacturers produce about 250 million bolts and nuts in a day, with some 32 dimensions to be held to very close tolerances in each bolt; about 18 in each nut. Owing to standardization, however, today there is seldom a fastener that does not fit where it is expected to fit, regardless of the plant from which it is purchased.

In 1868 a Navy survey showed 21 thread systems in use, in addition to the two most common systems—Whitworth and Sellers. All differed in pitch diameter, number of threads per inch, or thread form. Not until manufacturer and user were brought together through the procedures of the American Standards Association was real progress made in uniformity. Now, in addition to standard dimensions prepared under ASA procedure, standards for materials are prepared through ASTM committees.

"It may not be too fantastic to feel that standards can bring nations to a better understanding and agreement." Mr Davey commented, "We have certainly seen it bring competitive industries together. Only through this common ground have we, as a producer of fasteners, got industries to use the same products."

Mr Davey cited examples: A hexagon head fastener known as a cap screw was once produced on screw machines. It came into common use when adopted by the automotive industry as well as by machine tool builders. However, farm implement and electrical equipment manufacturers used a hexagon head to bolt dimensions. Finally, all adopted the same head dimensions through work of the ASA committee.

Through agreements on engineering requirements for nut dimensions, the former regular and light series were combined into one, and the heavy series altered to give the least possible number of wrench openings and still satisfy the need. Through this standardization, wrench openings will be reduced by approximately 40 percent.

On Plow Bolts, it took courage and skill to change in 1928 from a variety of head styles to only four. The present standard (1950) was agreed upon following a complete survey of all applications of these four styles and the conditions under which they were used. In this work the users were represented. The new standard was completed in record time and was immediately accepted.

After adoption of the 1927 standard, the company's plow bolt equipment reached 35 percent production efficiency. Since adoption of the new standard, it is up to 75 percent and still gaining.

Our company now marks up no special charges, whereas previously it showed $20,000 in setup charges alone in the course of a year. The price of plow bolts to the consumer was therefore reduced, Mr Davey said.

In normal times, we can now make large economical runs for stock. We can run our plants on a planned production basis. We can hold our costs to a minimum and balance out our work cycles. We know the product is saleable; it is made to a standard. The user gets the advantage of the large runs even though he only buys the quantities he needs. He can carry a minimum of inventory, knowing that plenty of products required by him are just around the corner. He can exercise his judgment and knowledge of purchasing.

"Standardization is the very essence of competition," declared Mr Davey. "It gives the buyer the freedom to select his source of supply based on the fundamental principles of service, quality, and price. It gives the buyer the safeguard of more than one source of supply. It is the common ground on which we can do business, as the standard nomenclature is understood by all concerned. It eliminates the costly mistake of wrong products and rejects. It is hard to visualize how our competitive system could possibly go on without it. Standardization is not only one of the factors; we fully believe it is the essential for mass production."

How Electrical Standards Aid Purchasing

A. E. Pringle II Vice-President, Pringle Electrical Manufacturing Company, Philadelphia, Pa.—

Today, from coast to coast, you can plug your electrical appliances into a standard wall receptacle.

You can specify an electric motor by its rating and frame size and select your choice from bids submitted by manufacturers with the knowledge that the motor chosen will fit the application for which the purchase is made. This is also true of wiring devices and construction materials used in an electrical installation. Your contractor can go to his supply house and buy all the parts necessary for a complete installation with the assurance that they will fit together.

Standards for electrical equipment are developed within a company, or by a group of companies, written up by them in their section of the National Electrical Manufacturers Association, and after careful consideration by the Association's Codes and Standards Committee are approved as NEMA Standards. When such standards affect the products of other sections of the Association, the committee's assignment is to see that all interests have proper consideration. Many of these standards are of such importance that we present them to the American Standards Association for processing by sectional committees and approval as American Standard.

Such standards as the National Electrical Code and the National Electrical Safety Code incorporate rules for installation of electrical equipment in order to provide a finished job, reasonably safe for persons and property. The interests of the manufacturer, the contractor, the electric light company, and the inspector are all amalgamated to give the user in the home and in the factory a product which has been standardized from the generating plant to the lamp in his living room or office, and to see that he and his property are reasonably protected from hazard and fire. This standardization also enables the manufacturer to sell his products anywhere within the jurisdiction of these codes.

To apply the same principle to purchasing, when you have electrical equipment to buy or a contract to let, see that your specification recognizes the appropriate standards.

When you buy on this basis, whether for one plant or dozens, your purchase will meet nationally recognized standards and can be serviced by trained technicians in the locality in which it will be installed. You help your maintenance men by ordering standard equipment for which spare parts are available.

Your insurance rates go down when you adhere to nationally recognized standards and codes in ordering equipment to meet special hazards in your plants,—not to mention the number of lives saved by the proper use of safety standards.

How ASTM Operates

Robert J. Painter Assistant Secretary, American Society for Testing Materials, Philadelphia, Pa.—

Our work concerns specifically the field of engineering materials. For over fifty years many of the country's leading engineers and technical executives have devoted tremendous effort to promoting knowledge of materials of engineering—technical research; and standardizing specifications and methods of testing. Over 1500 ASTM committees range from small groups of six or eight competent men to larger groups of 600 to 650. The latter are main technical groups covering such subjects as steel, petroleum, plastics, textiles, etc. Their work is broken down into specific divisions. The Steel Committee is subdivided into smaller groups concerned with structural steel, bar steels, rails and track fastenings, forgings, pipe and tubing, testing, etc.

In a technical committee technical representatives of two main groups are brought together: the consumer, his engineers, and men who know his needs; and technical representatives of producers of materials. Producers may not predominate. A third "general interest" group consists of consulting engineers, educators, independent research laboratories, and groups like the National Bureau of Standards. Often this group acts as a moderating influence.

After a committee agrees on a test method, it is voted

on by a committee letter ballot, and then approved and published by the Society. Sometimes committees devote years to developing test methods before standard specifications are available.

In drafting a purchase specification the committee will set down logical proposals, covering physical or chemical properties or both, stipulate the methods of testing to be used, and the other qualities essential in covering the material.

Sound and carefully analyzed data must be the basis of adequate materials specifications. Industry, and both the federal and state governments provide considerable technical data; devote the time of many men and their laboratories to round robin testing or controlled field testing to make sure that tests are adequate. It is difficult to estimate the cost to industry and government of the round robin and research testing they do for the Society.

Interesting problems come up. A few years back some structural angles in certain transmission towers were discovered to be brittle. The answer was found after much cooperative work. Some of the thicker angles were being cold-punched, and after galvanizing, brittleness occurred. Only a few companies had been doing this and they quickly revised their procedures. "A method for safeguarding against embrittlement of hot-galvanized structural steel products (A 143-46)" was issued. "A" means it is in the field of ferrous metals; "143" identifies that standard; "46" indicates it was issued or last revised in 1946. "B" groups cover nonferrous metals and alloys, electrical heating alloys, electrodeposited metallic coatings and metal powders; "C" covers cement, ceramics, concrete and masonry materials; "D" specifications cover coal, petroleum, textiles, paints; and "E" covers miscellaneous testing groups, metallography, radioactive isotopes, chemical analysis of metals.

Putting Standards Into Action

J. H. Foote Vice-President, Commonwealth Services, Inc., Jackson, Michigan.—

Benefits from a "good" standard are just what the purchasing agent might order: First, lower costs; second, greater comparative value; third, quicker deliveries; and fourth, repetitive availability.

A good standard should select varieties so as to reduce the number of items available, but should do so with a careful appraisal of the demand.

A good standard should be the product of collaboration by those best informed in the field. It should supply a genuine need. Any standard that gets through ASTM or ASA procedures must fill a need or it will not have made the grade. The standards you are asked to purchase by *must* have this ability to fill a need.

The good standard must comprehend the problems of both the producer and the consumer. It must encompass the scope of the various needs, and provide an adequate variety of types and sizes, while at the same time simplifying wherever possible. Recently a State Highway Department report showed how they had concentrated on only four types of pipe in a number of sizes. Their first requirement was for the little culvert that runs under a farmer's driveway—small, and with light and infrequent loads upon it. They selected ASTM C14-41, for non-reinforced, rather cheap pipe. For more heavily traveled roads they standardized for the next degree of strength on C75-41 reinforced concrete sewer pipe. They also have trunk highways with heavy loads. For these they needed something very rugged, so they used ASTM C76-41. In this standard (for "Reinforced Concrete Culvert Pipe") there are two subtypes—one for standard strength and the other for extra-heavy strength. So they came out with four types, in three specifications. Here is a fine example of simplification and opportunity for reduction in cost available in a good series of standards. Suppose that every one of the 48 states had a Highway Department that devised its own specifications for concrete pipe. There might be at least 48 types of pipe, dimensions, testing methods, and so forth. Instead, this outstanding simplification was achieved not by bringing everything down to *one* type of product, but by producing a *comprehensive* job of simplification.

A good standard also must and should be kept up to date. The national standardizing bodies all have rigorous procedures to insure that this quality of virility is inherent in their standards.

A fourth fundamental quality is that of integrity. The pattern of organization of standardizing committees, and their procedures in the ASA, the ASTM, and other such bodies provides for checks and balances and reviews and approvals to insure this integrity in the standards they produce. How do we go about selecting and applying standards? What is the procedure for getting the most out of what the market offers in standardization?

Become informed as to the standards that are available in your field. Make sure you know about them. To do this, engineers and purchasing agents should collaborate in studying lists of available standards.

Be informed of the real requirements of the consumer interests. A remarkable lack of accurate information exists with respect to real requirements.

With the necessary information, select, adapt, and make use of available standards. To do this, you may find it helpful to set up a liaison committee within your organization, to gather together the operating, design, engineering, and purchasing interests, to review, examine, and accredit your information and come out with something that fills your needs. Correspond with national standardizing organizations on standardization matters.

Let your own organization know that you are concerned with the preparation and use of good standards. Everyone in your company should know that you, as a purchasing agent, are concerned with standardization as a factor in effecting economies. Cooperation in standardization is profitable. Let us be dynamic about it.

Note: The lively discussion which followed this meeting is being reported in the published proceedings of the National Standardization Conference.

At Materials Conservation Forum, Advertising Federation of America's scrap metal symbol, "Scrappy," joins Panel speakers C. W. Bryan, Jr.; Eldridge Haynes; R. W. Wolcott; Nathaniel Knowles.

Materials Conservation Forum

Sponsored by the magazine, *Modern Industry*

Modern Industry staged the fifth of its conservation forums during the National Standardization Conference. Some 250 executives representing companies in the New York area heard the panel discuss critical material shortages and plans for mobilizing a drive to collect the country's hidden supply of scrap metal to aid steel production. Eldridge Haynes, president and publisher of *Modern Industry*, acted as moderator.

Robert W. Wolcott Chairman of the Board, Lukens Steel Company, Coatesville, Pa.; Chairman, Steel Industry Scrap Mobilization Committee, American Iron and Steel Institute.—

Faced with a serious shortage of scrap, which threatens to shut down some steel furnaces during this coming winter, the steel industry has taken steps to try to solve the problem. It has organized the Steel Industry Scrap Mobilization Committee, which plans to study potential sources of scrap and ways of conserving the scrap that results from manufacture of steel products. It also will endeavor to flush out the so-called dormant scrap resulting from obsolescence of machinery and equipment.

The industry estimates that some 36 million tons of purchased scrap will be required this year—50 percent more than the biggest year of World War II. The goal by January 1953 is production of 119 million ingot-tons. An estimated 2.2 million tons of industrial scrap will result during this production, leaving a total of 4.3 million gross tons of scrap to be collected from obsolete equipment.

Potential sources include: The auto graveyards, with an estimated 7,000,000 cars, representing over 7,000,000 tons of potential scrap. The 1400 ships in the maritime pool, some left over from World War II and some dating back to and prior to World War I. Obsolete and worn out equipment built for use in World War II or earlier and stored in Government warehouses and arsenals. Single-purpose tools for the production of equipment in World War II not usable for modern equipment. Dies, jigs, fixtures, belonging to tools located in some other warehouse.

Impartial groups of men must be set up to examine personally these ships and equipment and report on whether they can and should be scrapped. An effective campaign for farm scrap is being organized.

Little has been done to bring battlefield scrap back from Korea or the Pacific Islands. A General Services Administration mission to the Far East and India is reporting on the steps needed to bring ths scrap back.

Because of the world-wide shortage, scrap from Germany is directed to England; and with no quid pro quo policy, Iran, Egypt, Turkey, Spain, where there is scrap, refuse to sell or demand nearly twice the ceiling price set by OPS.

Replies to a questionnaire sent to heads of 10,000 corporations indicate that practically every industrial plant has some dormant, obsolete scrap. To flush out this possible million or more tons, 32 leading steel companies and the American Steel Warehouse Corporation have made available approximately 9,000 of their top salesmen. Some 2,000 Scrap Mobilization Committees will be organized to work in 334 areas into which the nation has been divided. Salesmen at the local level will see that every industrial user of steel, as well as hotels, clubs, institutions, schools, and government departments are requested to search out their dormant scrap—all obsolete and worn out machines, facilities, and equipment. Only when the Federal Government makes an effort similar to that of the steel industry will we be assured that our furnaces will pour forth steel in the quantities needed.

C. W. Bryan, Jr. President, Pullman-Standard Car Manufacturing Company, Chicago, Ill.—

In the 12 months ending September 1, 1951, Pullman-Standard had facilities to fabricate 600,000 tons of steel, but could obtain only 444,232 tons. The steel available represented use of only about 60 or 70 percent of the company's existing capital facilities.

The record shows that 80,222 freight cars were retired by Class I railroads in 1950 and only 68,931 cars were built. At least 50,000 of the retired cars were of steel. Those 50,000 cars alone would provide about 750,000 tons of scrap steel returned, for 1,033,965 tons of steel delivered to all companies building freight cars.

A freight car sells for as low as 12 cents per pound, making it one of the lowest priced manufactured articles in this country. In order to meet this price, production cannot be interrupted. Unless a full pipeline of properly matched materials is available when a lot is started, cost disaster will occur. Smooth, economical operation of a freight car plant requires sufficient steel and other materials on hand to permit each department and each group within a department to meet work schedules.

Except in the case of Pullman-Standard's box car PS-1, which was designed with standard components, hundreds of items that go into a freight car or passenger car vary from one order to another and must be ordered months ahead of the start of the work. These items are not standard. They cannot be switched around and used as substitutes elsewhere.

The standard design of Pullman-Standard's box car PS-1 helps speed box car production, conserves time, and facilitates the proper flow of materials. Components are manufactured by the company, including under-frames, ends, sides, roofs, release rigging, and floor clips. Production of these standard parts is geared to requirements. Plants have been able to reduce periodical labor force layoffs that resulted when shop equipment was changed from one order to another. The standardized car makes it possible to make changeover without interruption in delivery schedules, thus conserving time and assuring steadier work for employees. An important structural feature is the use of welding instead of riveting, saving tons of metal per year. Deliveries of the PS-1 box car are well above 34,000 since 1947; another 14,000 are on order.

Nathaniel Knowles Deputy Administrator for Staff Services, Defense Production Administration, Washington, D. C.

The Defense Program is now entering the period of greatest demand on materials. The first and second quarters of 1952 will be critical. After that, steel and aluminum expansions will bring some easing of supply. The outlook for copper is not as good. No immediate relief is in sight, and although the next few quarters will be the most critical, the fundamental problem will remain. New sources to offset declining yields of present mines and care for a continually expanding economy cannot be readily developed. The Military Departments and American industry must be aware of the necessity to continually analyze copper uses for possible substitutes, particularly aluminum and steel.

Scarcities today are due to a variety of causes, one or more of which applies to each particular material:

We have record employment at high wages: This means money to spend. Business wants to make and sell those things which the public can and will buy. Demands today for consumer durable goods are probably the greatest in our history.

We have lost supplies of some metals to other customers who also have booming economies and military production. European industrial production is some 50 percent above pre-war.

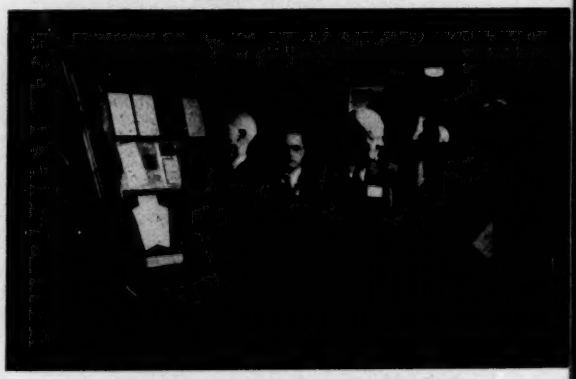
World prices in many cases are higher than ours and materials tend not to come here. For six months we have been completely priced out of the world market for tin. Lead imports have fallen off.

Every segment of our economy wishes to expand. The strength of our nation is advanced by more schools, hospitals, homes, roads, electric power, oil and gas lines, agricultural machinery, freight cars, and industrial capacity. But they cannot all be accomplished at once and immediately. Therefore, decisions have to be made as to what is more important, and these decisions have to be implemented.

In a real sense, today's situation in some respects is more difficult to administer than all-out war. We are trying to do two jobs—partial mobilization of our military strength, and full development of our economic strength.

Under these conditions, the urgency of conservation is obvious. The greatest efforts of industry and Government in the fields of simplification, standardization, substitution and salvage are vital to success.

The Defense Production Administration is trying to stimulate, guide, and assist all forms of conservation.



Purchasing session audience pauses to study Ansco exhibit and pick up copies of speeches just heard; below, letters from other countries about the "Strange Case of the Seven-Sided Post Hole" attracted much attention

A Conservation Division, small in size but staffed with experienced personnel, has been organized. There is a Conservation Division in all Government agencies. Each NPA Industry Division has conservation specialists. The Department of Defense is very active in many phases of conservation. They have to be. There isn't enough of many materials, even if they get 100 percent of the supply, to meet their needs. Eighteen Government agencies have been made members of a Conservation Coordinating Committee, chaired by the Defense Production Administration. The purpose is to plan, develop, and coordinate policies and projects. Special subcommittees direct individual projects. Copper conservation, sulfur conservation, alloy metals, and construction are among the most important. The standard of living is steadily increasing. This means more production, more demands for materials, and progressively greater scarcities. Industrialists must reorient from an economy characterized by plenty of cheap raw materials to one of increasing scarcity of raw materials. Mobilization merely speeds the inevitable process which from now on will grow year after year.

Discussion

Replying to a question on the use being made of tin cans in the scrap mobilization campaign, Mr Wolcott explained that the De-Tinners Group will help in setting up pilot operations in concentrated areas. Local groups will be asked to find ways of hauling used tin cans to a loading point for shipment to the de-tinners.

"We are getting more cooperation from the Military in our present efforts than we got in either World War II or World War I," Mr. Coonley declared in response to a question on standardization among the Services. One problem in this respect, Mr. Knowles remarked, lies in divergent opinions on the part of industry. When the Military has developed what it considers to be an adequate substitute, high sources in industry sometimes give conflicting opinions as to whether they can use the substitute material in production or not.

"Has anything been done to reduce the unnecessary iron and steel designed into products?" asked one questioner from the floor. In reply, Mr. Coonley called attention to the fact that this had been the principal question discussed at the *Modern Industry* forum in Chicago September 26. As a result a committee is to be organized to see what can be done to design products in such a way as to make the least possible use of critical materials.

To keep industry informed on *relative* scarcities of critical materials, NPA publishes orders showing what has been saved in terms of materials, and a list of critical materials. Mr. Coonley's office puts out a relative substitution list, from the tightest material to the least critical. A material high on the list can well be replaced by a material lower on the list, Mr. Knowles pointed out. Title of this list is "Basic Materials and Substitutes." A bibliography of articles and trade papers calling attention to excellent substitutes is being added.

Explaining why the price of tin is affecting the supply, Mr. Knowles pointed out that after Korea the price went up from about 78 cents to $1.80 in a few months. Tin could not be bought at that price and sold under U. S. price ceilings. The U. S. Government has announced it will be the exclusive purchaser of tin and will not buy until prices are within reason. We need international agreements with the major tin-producing nations to control prices and to allocate tin, Mr Knowles declared. Meanwhile, he said, there is enough tin in inventories of industry and of the RFC to keep a reasonable economy going.

Asked "How is it that the United States is priced out of the world markets, when we give money for foreign production?" Mr Knowles commented that many of the countries which have these items for sale are not in areas where we assist with international aid. Even when they are, we cannot dictate how they run their economies or what they do with their resources. "We are not just giving this aid to benefit those countries," he said. "We are giving it so that we will all have a strong economy."

To assure economic consumption of materials, a manufacturer should have standards which are most acceptable to the largest number of its customers and which are designed to use materials most effectively, Mr Bryan declared. He should also have an inventory card system that gives him accurate and sensitive inventory control.

Discussion on the use of the American Standard preferred thicknesses for thin flat metals brought comment from the floor. One member of the audience declared that steel companies, when asked about using the standard, reply that they supply any steel customer's order. Customers reply that warehouses do not stock to the American Standard; they stock to United States standards, or Birmingham Gauge, depending upon whether it is sheet or strip. Here he said is "a standard which everybody agrees would create quite a lot of saving if it could be put into practice, but we never seem able to get the consumer and producer in the same room and have them agree." Another member of the audience commented, "The Purchasing Department would like very much to use the preferred thicknesses. Our Tool Department would like to use the preferred thicknesses. We have contacted all our steel suppliers, and all our nonferrous suppliers, and they have all expressed the desire to use this standard. However, when we go to purchase the material, we find we have to pay a premium for it. The man who prices the material has a code book that he uses. Brass, .020, is one of the preferred thicknesses. However, the pricing book lists that as .0201. There is a difference of two cents per pound in that one-tenth of one-thousandth, per thickness. If a man is purchasing a million pounds of nonferrous material per year, he is really paying a premium."

It was further pointed out that the list of sizes included in the standard has been expanded recently, to include practically all American Iron and Steel Institute nominal sizes. There should not be extras involved in ordering these steels, the speaker commented.

Dean Dawson told the story of plumbing to ASA's Standards Council. From left—G. F. Hussey, Jr; W. C. Wagner; T. D. Jolly; Dean Dawson (speaking); Alvah Small, who spoke on the National Electrical Code; Cyril Ainsworth

Standards that Affect You and Me

Plumbing and electricity were the subjects of a new "Standards That Affect You and Me" feature of the Standards Council meeting October 24. Typical of the Twentieth Century's technological progress, both plumbing and electricity depend upon standards for safe and efficient service.

The health of the individual and of the public is at stake where plumbing is concerned, pointed out Dean Francis M. Dawson of the College of Engineering, State University of Iowa. Dean Dawson is chairman of the Coordinating Committee for a National Plumbing Code. A uniform national plumbing code will make it possible to protect the nation's health at a reasonable cost, he declared. His talk before the Council traced the history of plumbing as far back as 4000 B.C., and outlined the measures that have been taken in this country to bring about agreement on a satisfactory national plumbing code. (Dean Dawson's talk will be published in the February issue of STANDARDIZATION.)

Dean Dawson was honored for the role he has played both in standards and in engineering education. "Early in World War II he introduced the first college course to be given in quality control in this country, and through his personality and leadership, he has played an outstanding role in creating a National Plumbing Code," T. D. Jolly, ASA President, declared in presenting a scroll to Mr Dawson. Dean Dawson is president of the American Society for Engineering Education, and as such is chief of the *Journal of Engineering Education*. "Last summer I sent the *Journal* an article that was critical—I hope constructively critical—of the way standards are being taught in our colleges," Mr Jolly said. "The *Journal* published it last month. I suspect that Dean Dawson may have had a hand in approving this friendly attack on his own institution."

The scroll presented to Dean Dawson read:

"The American Standards Association presents this certificate honoring Francis Murray Dawson, Engineer and Educator—Dean of the College of Engineering, University of Iowa; Past President, Engineering Colleges Research Association; Past Vice-President, American Society for Engineering Education; Chairman, Coordinating Committee for a National Plumbing Code; Fellow, American Public Health Association; Member, American Society of Civil Engineers, American Geophysics Union, American Society of Mechanical Engineers, American Sewage Works Association, American Water Works Association for his inspiring leadership in engineering education, his continuing emphasis on research in hydraulics as the basis for protection of the public through plumbing codes, and his understanding guidance and active participation in committees engaged in the development of national plumbing codes that are receiving widespread recognition in their adoption by governmental agencies throughout the United States of America."

The influence of the National Electrical Code has been felt in a multitude of ways. In less than 70 years it has earned the public's confidence that electricity is a dependable servant, said Alvah Small in his talk on the Code as a standard "that affects you and me." The history of the application of electricity can be traced in successive editions of the Code, he pointed out. Mr Small has just retired as President of Underwriters' Laboratories and chairman of the Electrical Committee of the National Fire Protection Association, which is responsible for the Code.

Presenting a scroll to Mr Small in recognition of his valuable leadership of the Electrical Code Committee for 26 years, Mr Jolly commented on the role of the National Fire Protection Association in the development of the Code. "We are not unmindful of the great service rendered by the National Fire Protection Association which has provided the facilities, the leadership and

the wherewithall necessary to the advancement of this program," Mr Jolly said. "In honoring you and through you, we desire to honor the National Fire Protection Association."

Mr Small's citation read:

"The American Standards Associations presents this certificate honoring Alvah Small, Past President, Underwriters' Laboratories; Past President and Honorary Life Member, National Fire Protection Association; Honorary Life Member, International Association of Electrical Inspectors; Chairman, Electrical Committee, National Fire Protection Association—the American Standards Association Committee in charge of the National Electrical Code—for twenty-six years; Past Director of the American Standards Association for his outstanding contributions to the art of fire prevention through the application of the principles of standardization to the work of development and revision of the National Electrical Code and its recognition and utilization as the guide to the safe installation and use of electrical wiring and apparatus throughout the length and breadth of the land."

The National Electrical Code

Mr Small pointed out that the record of the code is continuous, going back almost to the first commercial use of electricity for light, heat, and power. The Pearl Street Station of the New York Edison Company was opened in 1882. The first "insurance rules" were compiled and published by the New York Board of Fire Underwriters for wiring and equipment installed to use energy supplied by that plant. Common problems of the powerhouse operator, the lineman, and the property-owner and user, were recognized during the 1890s as central station projects were developed over the nation. At first solutions were worked out independently, but as the possibility of arriving at a common solution was recognized, this common treatment of the new electrical industry's problems came under the auspices of the National Electric Light Association, known as NELA.

The decade of the '90s has been called the "rompers age" of the electrical industry. During that decade, the fire insurance business was developing rules to be observed for safe installation of electrical equipment. In 1897 the first edition of the National Electrical Code, published thereafter by the National Board of Fire Underwriters, appeared.

A principle of standardization emphasized in that Code and its subsequent editions was prior consultation with other organizations, including NELA.

From 1897 to 1923, recognition of the Code continued to grow, partly due to its biennial revisions.

After the American Engineering Standards Committee was organized, the National Electrical Code was placed under the procedure of the Committee, and sponsorship of the National Fire Protection Association. It was given the number C1.

Mr Small himself had been a member of the National Electrical Code Committee since 1909. In 1925 he was elected to serve as chairman of AESC Sectional Committee C1 and of the sponsor's Electrical Committee.

By reviewing successive editions, the application of electrical energy can be traced. Individual power stations distributing direct current locally at low voltage, and for the most part overhead, have been largely supplanted by alternating current generation and distribution at high voltages. Lighting equipment has developed from the series-arc lamp suspended from wooden hanger boards and served by open wiring on wooden cleats, to the present-day incandescent or electric discharge lamp supplied by wiring run in concealed raceways, which makes possible night-time floodlighting of a baseball field or an amphitheatre. Electric motors, large and small, apply the driving forces required to operate machinery of a multitude of designs and purposes.

The National Electrical Code has permitted paralleling development of control equipment so that electrical energy can be had when, if, and as needed in amounts appropriate for whatever job is in mind.

As radio broadcasting and receiving appliances developed, the safeguarding function of the National Electrical Code was exercised.

"These developments and groups, in our lifetime, have in their respective fashions assisted and guided the use of electricity in a multitude of directions permitting application of its possibilities in divers manners," Mr Small commented. "Our way of life is the result."

A Plan for British-American Understanding

A far-reaching plan which may help to iron out differences in American and British technical terms was considered at the Standards Council meeting. As a preliminary step the Council authorized its chairman to appoint a small committee to confer with the British Standards Institution. The committee is to report to the Council as to whether some program can be worked out for closer cooperation between BSI and ASA that may help to prevent the use of different terms in the two countries.

1952 Standards Council chairman J. R. Townsend (right) and vice-chairman A. S. Johnson (center) chat with N. Quade, member of committee that nominated them.

Dr H. S. Osborne, president of the International Electrotechnical Commission and vice-president of ASA, recommended this action as a result of his experience in international meetings during the past year. Controversies over terminology continually arise between American and English representatives rather than between representatives speaking different languages, he declared. The device known in the United States as an "electron tube" has been known in the United Kingdom as a "valve," he pointed out as an example. A conference at the IEC meeting this summer resulted in agreement on the term "electronic tube." Typical of American and English language difficulties, Dr Osborne remarked in a lighter vein, is the query of the English telephone operator, "Are you through?" Contrary to American practice, she is not asking "Have you completed your call?" What she wants to know is, "Are you ready to talk?"

"It is disappointing," Dr Osborne commented, "to arrive at a meeting only to find that British and American delegations have already developed entirely different terminology."

Standards Council Elects

J. R. Townsend and A. S. Johnson will head the technical activities of the American Standards Association for 1952 as chairman and vice-chairman of ASA's Standards Council.

Mr Townsend is materials engineer of the Bell Telephone Laboratories, Inc. Recognized as an authority on materials specifications and tests, particularly in the communications field, he served as consultant to the National Research Council, the War Production Board, and other war agencies during World War II. He has been with Bell Labs since 1925, starting as materials standards engineer, and becoming materials engineer in 1945. He has represented the American Society for Testing Materials on the Council since 1944.

Mr Johnson, vice-president of the American Mutual Liability Insurance Company, has represented the National Association of Mutual Casualty Companies on the Council since 1946. Because his special interests lie in standards for the protection of workmen, he is a member of the Safety Code Correlating Committee, and has served as vice-chairman for the past two years. Mr Johnson is also a member of the American Society of Safety Engineers and the American Public Health Association.

Members of the Board of Review for 1952 are:

V. G. Graham, Sylvania Electric Products, Inc
H. E. Jordan, American Water Works Assn
W. P. Kliment, Crane Company
Harold Massey, Gas Appliance Manufacturers Assn
E. B. Paxton, General Electric Company
T. E. Veltfort, Copper and Brass Research Assn

The Board speeds the procedure of approving American Standards by acting for the Council on all routine questions, referring any unusual problems to the Council itself for decision.

T. E. Veltfort (left) named 1952 chairman by ASA Member Executives; W. J. Donald (right) retiring chairman

Conference of Executives of Organization Members of the American Standards Association

Two committees set up to study methods used in publishing and selling standards made their reports at a meeting attended by staff representatives of trade association and technical societies that are members of ASA. After hearing the report, the meeting voted that the development of a style manual to cover all standards publications should be studied. The matter was referred to the managing director of the American Standards Association "for consideration in appointing a committee within the CEOM, or of representatives of the CEOM and other official bodies of the ASA for study and comment."

The need for a general index of all standards published in the United States was discussed. The International Organization for Standardization is developing a card file system that will contain a Universal Decimal Classification of the countries, the standards bodies for the countries, and the standards themselves. The file will have English and French titles for each standard, a reference number for the standard, and will indicate whether it supersedes any previous edition. It is expected that in three or four years each national standards body will have a card index of all standards in the world and any organization that wishes will be able to subscribe to the service, Admiral Hussey reported.

C. A. Young, Director of the Division of Production, American Petroleum Institute, spoke on international standardization of oil field equipment. For report on speech made by Mr Young see January issue of STANDARDIZATION.

Some Conference Personalities

Dr Allen V. Astin (page 383), named acting director of the National Bureau of Standards to succeed Dr E. U. Condon, has been associate director of the Bureau responsible for the Division of Electricity, Electronics, Ordnance Development, and Missile Development. His duties have also included responsibility for the Office of Basic Instrumentation and coordination of the Bureau's operations with other Government agencies. For his work in development of proximity fuzes during World War II he received the President's Certificate of Merit, the War Department Certificate of Appreciation for Outstanding Service, and from Great Britain, His Majesty's Medal for Service in the Cause of Freedom.

At the Ordnance Session (page 389)

Mr Polk is not only president of The Sheffield Corporation, world leader in the field of precision measuring instruments; he also heads the Threadwell Tap & Die Company, manufacturer of taps, dies, and other small perishable tools. He is also chairman of The Sheffield Corporation of Australia, Pty, Ltd, with plant and general offices at Melbourne. Mr Polk is active in ordnance work as vice-president of the American Ordnance Association, in charge of all technical divisions and committees. He is also chairman of the Association's Gage Industry Division and president of the Cincinnati Post. Not content with machine tools and precision instruments, Mr Polk is a director of a number of banking companies, the Selby Shoe Company, Portsmouth, Ohio, and the Kay & Ess Company, manufacturers of industrial paints and finishes.

Dean Condit's Princeton School of Engineering, after playing a key role in wartime research, is now pioneering in the development of plastics and graphics programs. Dean Condit himself has a wide range of interests outside academic circles. He is a member of the National Research Council Committee on Quartermaster Problems and chairman of the Quartermaster's Subcommittee on Mechanical Problems. His experience includes service as executive assistant to the president of the National Industrial Conference Board and as editor of the trade magazines, *American Machinist* and *Product Engineering*. He is a past vice-president of the American Society of Mechanical Engineers.

Mr Sogge has been associated with GE since 1916—with time off for military service in World War I. He is chairman of the National Electrical Manufacturers Association's Codes and Standards Committee, vice-president of the U. S. National Committee of the International Electrotechnical Commission, and a Director of the National Fire Protection Association.

General Shepard, youngest U. S. Air Force general, retired in September to accept his present position as vice-president of Thompson Products, Inc. The company is a leading supplier of aircraft and automotive parts. He achieved his rank of Brigadier General at the age of 34 in 1947. At the time he left the Air Force he was Director of Procurement and Production Engineering in the Office of the Deputy Chief of Staff, Materiel, at Washington.

Admiral Schoeffel is the first Naval Aviator to serve as chief of the Navy's Bureau of Ordnance. His experience during the war included command of the Aircraft carrier USS Cabot during attacks on the Japanese base at Truk Atoll in the Caroline Islands. He also served as a member of the Special Joint Chiefs of Staff Committee on Reorganization of National Defense, as Deputy Chief of Staff to the Commander in Chief, Pacific Fleet and Pacific Ocean Areas, and as Deputy Chief of the Bureau of Ordnance.

Mr Roeder, one of the most widely known engineers in the truck industry, is newly elected president of the Society of Automotive Engineers. He has served on numerous SAE committees and was vice-president of the Truck and Bus Activity and a member of the Council and Executive Council in 1948. He worked on the Model T Ford and later on many of the engineering designs for the Model A.

Colonel Rison, a senior pilot with more than 2,000 hours flying time, has succeeded General Shepard as Director, Procurement and Production Engineering, Office of the Chief of Air Force.

Mr Quarles is chairman of the Committee on Electronics of the Research and Development Board of the Federal Government and has served as a member of the Board of Directors of the American Institute of Electrical Engineers. As Director of Transmission Development for Bell Labs from 1940 to 1944 he was in charge of the development of carrier telephone systems, broad band telephone and television systems, and improved voice frequency transmission systems. During the war, the efforts of this department were largely concentrated on military electronic systems, particularly radar.

General Davis was responsible for all ammunition activities in the Southwest Pacific as Deputy Ordnance Officer in that theatre in 1944; in 1945 he became Chief Ordnance Officer of the American Forces in the Western Pacific. He is known for his contributions to the design, development, and methods of manufacture of ammunition, a specialty to which he has devoted many years of his Ordnance career.

At the Purchasing Session (page 396)

Vincent de P. Goubeau was purchasing agent for the United Fruit Company before the war. After two years' service in the Office of Procurement and Material, Navy Department, he became Chief of Procurement. He has been with RCA Victor first as director of Materials

and recently as vice president in Charge of Materials.

R. J. Painter is not only assistant secretary of ASTM but associate editor of the ASTM *Bulletin* as well. He boasts membership in ASTM, American Society for Engineering Education, Science Teachers Association, Special Libraries Association.

At the Materials Conservation Forum (page 399)

Eldridge Haynes had experience with McGraw-Hill Publishing Company before organizing Magazines of Industry, Inc, in 1940 and founding the magazine, *Modern Industry*, in 1941. In 1950 and 1951 he served as president of the National Management Council which represents the management societies of the U. S. at the international level. Under the auspices of the Council, National Association of Manufacturers, and ECA he organized the first International Conference of Manufacturers.

Mr Wolcott is a director in a number of important companies and national associations as well as chairman of the Board of Lukens Steel Company, Coatesville, Pa. He has been with the company ever since he became manager of its warehouse and fabricating division in New Orleans in 1922.

Mr Bryan not only knows railroad car building but shipbuilding as well, having worked for many years with the Federal Shipbuilding Company. In 1949 he was loaned to the Economic Cooperation Administration and served in Italy with an ECA mission as consultant on shipbuilding and shipping. He is a past president of the Society of Terminal Engineers, past director of the American Society of Civil Engineers, and is active in the affairs of the Society of Naval Architects and Marine Engineers.

Mr Knowles served as Director of the Division of Statistics and Reports, ECA, before becoming DPA Deputy Administrator for Staff Services. He had industrial experience with the Bell Telephone Company of Pennsylvania before World War II and as assistant to the president of the Hanover Shoe Company, Hanover, Pa., since the war. In World War II he received the Legion of Merit for development of the Army Supply Control Plan.

"Off the Cuff" Comments

"This job of standardization is a never-ending one. We only make a dent in the problem of reciprocating engines, for example, when a whole new field is opened up with jet engines. We think we are beginning to understand high explosives and their limits—when someone starts exploding atoms."—*William C. Newberg, President, Dodge Division, Chrysler Corporation.*

"Someone has said that there is nothing so irresistible as an idea which has found its proper time. I believe that the standards idea has found its time, and in the hard, uncertain years ahead of us will be one of our greatest assets in winning technical advancement, prosperity, and security for our people."—*T. D. Jolly, Vice-President, Aluminum Corporation of America.*

"Those of us in Ordnance are very much concerned with the present situation. Standardization is a key problem. It has been a key problem from the days of Eli Whitney down to the present. It not only concerns the saving of money, but saving human lives as well."—*Colonel James L. Walsh, USA (Ret), President, American Ordnance Association.*

"The last thing in the world we in the American Standards Association want is a standard merely for the sake of being standard. Standards are tools for engineers, for industry, for the military, for the consumer—and only useful tools are worth having."—*Vice Admiral G. F. Hussey, Jr, USN (Ret), Managing Director, ASA.*

STATEMENT OF THE OWNERSHIP, MANAGEMENT, AND CIRCULATION REQUIRED BY THE ACT OF CONGRESS OF AUGUST 24, 1912, AS AMENDED BY THE ACTS OF MARCH 3, 1933, AND JULY 2, 1946 (Title 39, United States Code, Section 233)

Of STANDARDIZATION published monthly at New York, N. Y., for Oct. 1, 1951.

1. The names and addresses of the publisher, editor, managing editor, and business managers are:

Publisher, American Standards Association, Inc., 70 East 45th St., New York 17. Editor, Ruth E. Mason, 70 East 45th St., New York 17. Managing editor, none. Business manager, none.

2. The owner is: (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding 1 percent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a partnership or other unincorporated firm, its name and address, as well as that of each individual member, must be given.)

American Standards Association, Inc., 70 East 45th St., New York 17, Thomas D. Jolly, President; H. S. Osborne, Vice President; George F. Hussey, Jr., Managing Director.

3. The known bondholders, mortgagees, and other security holders owning or holding 1 percent or more of total amount of bonds, mortgages, or other securities are: (If there are none, so state.)

None.

4. Paragraphs 2 and 3 include, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting; also the statements in the two paragraphs show the affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner.

5. The average number of copies of each issue of this publication sold or distributed, through the mails or otherwise, to paid subscribers during the 12 months preceding the date shown above was (This information is required from daily, weekly, semiweekly, and triweekly newspapers only.)

RUTH E. MASON.

Sworn to and subscribed before me this 26th day of September, 1951.

LYDIA I. GUSTAFSSON.

(Seal) (My commission expires March 30, 1953.)

LYDIA I. GUSTAFSSON,
Notary Public, State of New York.
Qualified in Westchester County, No. 60-1608150.
Cert. filed with Register, N. Y. Co.
Commission Expires March 30, 1953.

AMERICAN STANDARDS

Status as of November 16, 1951

Legend

Standards Council—Approval by Standards Council is final approval as American Standard; usually requires 4 weeks

Board of Review—Acts for Standards Council and gives final approval as American Standard; action usually requires 2 weeks

Correlating Committees—Approve standards to send to Standards Council or Board of Review for final action; approval by correlating committee usually takes 4 weeks

Building

American Standard Just Published—

Specifications for Gypsum (ASTM C22-50; ASA A49.1-1951) $.25

Sponsor: American Society for Testing Materials

Consumer

In Board of Review—

Standard Definitions of Terms Relating to Textile Materials (Revision of ASTM D 123-50; ASA L14.12-1951)

Standard Method of Test for Hard Scoured Wool in Wool in the Grease (ASTM D 584-50; Revision of ASA L14.40-1949)

Standard Methods of Testing Felt (Revision of ASTM D 461-50; ASA L14.52-1951)

Tentative Methods of Test for Fineness of Wool (ASTM D 419-50 T; Revision of ASA L14.26-1949)

Tentative Methods of Test for Fineness of Wool Tops (ASTM D 472-50 T; Revision of ASA L14.29-1949)

Tentative Methods of Test for Asbestos Yarns (Revision of ASTM D 299-50 T; ASA L14.18-1951)

Tentative Methods of Testing and Tolerances for Glass Yarn (Revision of ASTM D 578-50 T; ASA L14.36-1951)

Standard Recommended Practice for a Universal System of Yarn Numbering (ASTM D 861-50; Revision of ASA L14.48-1949)

Sponsors: American Association of Textile Chemists and Colorists; American Society for Testing Materials

Submitted to ASA for Approval—

Standards for Rayon Fabrics, and Test Methods for Rayon Fabrics, L22

Sponsor: National Retail Dry Goods Association

Electrical

American Standard Just Approved—

Attachment Plugs and Receptacles, C73b-1951 (Addition to, and partial revision of, C73-1941)

Sponsor: National Electrical Manufacturers Association

In Correlating Committee—

Capacitors, C55 (Revision of C55-1934)

Sponsor: American Institute of Electrical Engineers

Electrical Resistance of Insulating Materials, Methods of Test (Revision of ASTM D 257-49 T; ASA C59.3-1949)

Sponsor: American Society for Testing Materials

Gas Burning Appliances

American Standards Just Published—

Listing Requirements for Automatic Pilots, Z21.20-1951 (Revision of Z21.20-1940 R 1947) $1.00

Addenda to American Standard Approval Requirements for Gas Water Heaters, Z21.10-1950, Z21.10a-1951 $.25

Sponsor: American Gas Association

Highway Traffic

American Standard Just Published—

Railroad-Highway Grade Crossing Protection, D8.1-1951 $.25

Sponsor: Association of American Railroads

In Correlating Committee—

Adjustable Face Traffic Control Signal Head Standards, D10.1 (Revision of D10.1-1942)

Sponsor: Institute of Traffic Engineers

Mechanical

American Standard Just Approved—

Bearing Mounting for Ball and Roller Bearings, B3.8-1951

Sponsor: Mechanical Standards Committee

In Board of Review—

Bearing Mounting Accessories, B3.9

Sponsor: Mechanical Standards Committee

In Correlating Committee

Ring-Joint Gaskets and Grooves for Steel Pipe Flanges, B16.20

Sponsors: American Society of Mechanical Engineers; Heating, Piping, and Air Conditioning Contractors National Assn; Manufacturers Standardization Society of the Valve and Fittings Industry

Nonmetallic Gaskets for Pipe Flanges, B16.21

Wrought Copper and Bronze Solder Joint Fittings, B16.22

Malleable-Iron Screwed Fittings, 150 Lb

Sponsors: Heating, Piping, and Air Conditioning Contractors National Association; American Society of Mechanical Engineers; Manufacturers Standardization Society of the Valve and Fittings Industry

Petroleum Products and Lubricants

In Correlating Committee—

Test for Sulfated Residue from New Lubricating Oils (ASTM D 874-51; Z11.68)

Test for Knock Characteristics of Motor Fuels by the Research Method (D 908-51; ASA Z11.69)

Test for Benzene and Toluene by Ultraviolet Spectrophotometry (D 1017-51; Z11.70)

Test for Olefinic Plus Aromatic Hydrocarbons in Petroleum Distillates (D 1019-51; ASA Z11.71)

Test for Apparent Viscosity of Lubricating Greases (D 1092-51; ASA Z11.72)

Test for Sodium in Lubricating Oils and Lubricating Oil Additives (D 1026-51 as revised on p 8 of 1951 D-2 report; ASA Z11.73)

Test for Flash Point by Tag Closed Tester (ASTM D 56-51; Revision of ASTM D 56-36; ASA Z11.24-1936 R 1947)

Test for Sulfur in Petroleum Products and Lubricants by Bomb Method (D 129-51; Revision of ASTM D 129-50; ASA Z11.13-1950)

Definitions of Terms Relative to Petroleum (D 288-51; Revision of ASTM D 288-49; ASA Z11.28-1949)

Test for Neutralization Value (Acid and Base Numbers) by Electrometric Titration (D 664-51; Revision of ASTM D 664-49; ASA Z11.59-1949)

Test for Distillation of Plant Spray Oils (D 447-51T; Revision of ASTM D 477-41; ASA Z11.43-1941)

Test for Unsulfonated Residue of Plant Spray Oils (D 483-51T; Revision of ASTM D 483-40; ASA Z11.41-1940)

Test for Carbon Residue of Petroleum Products (Ramsbottom Carbon Residue) (D 524-51 T; Revision of ASTM D 524-42; ASA Z11.47-1942)

Sponsor: American Society for Testing Materials

Withdrawal Requested—

Test for Steam Emulsion of Lubricating Oils (ASTM D 157-36; ASA Z11.15-1936)

Sponsor: American Society for Testing Materials

Safety

In Board of Review—

Manual of Accident Prevention in Construction, A10.1 (Revision of A10.1-1939)

Sponsors: American Institute of Architects; National Safety Council

Adjustable Face Traffic Control Signal Head Standards, D10.1 (Revision of D10.1-1942)

Sponsor: Institute of Traffic Engineers

In Correlating Committee—

Code for Forging and Hot Metal Stamping, B24.1 (Revision of B24-1927)

Sponsors: Drop Forging Association; National Safety Council

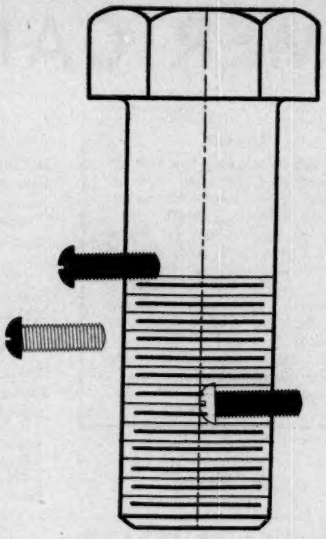
Safety Code for Mechanical Power Transmission Apparatus (Revision of B15-1927)

Sponsors: Association of Casualty and Surety Companies, Accident Prevention Department; International Association of Governmental Labor Officials

Just Off the Press

American Standard
Screw Thread Gages and Gaging

B1.2-1951



Essential complement to the American Standard Unified and American Screw Threads, B1.1-1949, this gaging standard is a revision of the 1941 edition. (Prepared by ASA Sectional Committee B1, jointly sponsored by The American Society of Mechanical Engineers; Society of Automotive Engineers.)

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